

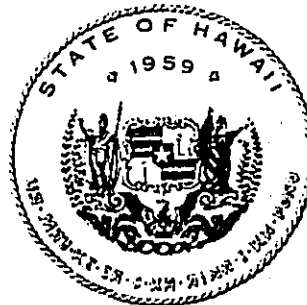
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ANUENUE (FORMERLY RAINBOW) RADIO FACILITIES AND TOWERS, KOKO HEAD SITE **FILE COPY**

JUN 23 2004

DRAFT ENVIRONMENTAL ASSESSMENT

**Anuenue (formerly Rainbow) Radio Facilities and
Towers Statewide
Koko Head Site
Maunaloa District, Island of Oahu**

DAGS Job No. 16-10-0256



Prepared for:
**State of Hawaii
Department of Accounting and General Services**

Prepared by:
Wilson Okamoto Corporation

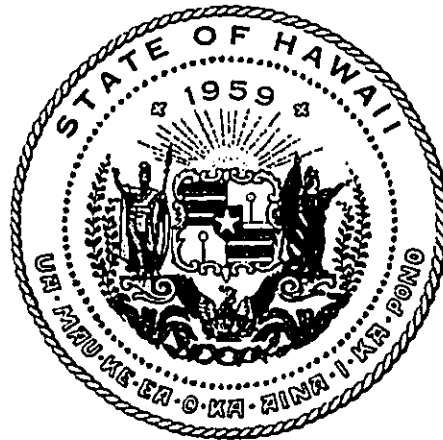
June 2004

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**DRAFT
ENVIRONMENTAL ASSESSMENT**

**Anuenue (formerly Rainbow) Radio Facilities and Tower
Koko Head Site
Maunaloa, Oahu, Hawaii**

Tax Map Key: 3-9-012: 002



Prepared for:

State of Hawaii
Department Accounting and General Services
Division of Public Works
1151 Punchbowl Street
Honolulu, Hawaii 96813
DAGS Job No.: 16-10-2056
Consultant Contract No. 49936

Prepared by:

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC: 6608-03

June 2004

SUMMARY

Proposing Agency: State of Hawaii
Department of Accounting and General Services
1151 Punchbowl Street
Honolulu, Hawaii 96813

Accepting Agency: State of Hawaii
Department of Accounting and General Services
1151 Punchbowl Street
Honolulu, Hawaii 96813

EA Preparer: Wilson Okamoto Corporation
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Contact: John L. Sakaguchi, AICP, Senior Planner
Tel: 808.946.2277; Fax: 808.946.2253

Project Location: Koko Head, Maunaloa District, Oahu, Hawaii

Recorded Fee Owner: City and County of Honolulu

Tax Map Key: 3-9-012:002

Area: 8,480 SF (0.195 acres) approximately

State Land Use Classification: Conservation

County Zoning: Preservation (P-1)

Proposed Action: Construction of one self-supporting tower with mounted antennas, one building, and other supporting facilities to be shared by the State of Hawaii Department of Accounting and General Services (DAGS) Information and Communication Service Division and the City and County of Honolulu to support the modernization of the shared State, Federal, and City and County of Honolulu microwave system to digital operation.

Parties Consulted During Pre-Assessment: US Army Corps of Engineers
US Coast Guard
US Fish and Wildlife Service
State of Hawaii Department of Hawaiian Home Lands
State of Hawaii Department of Health
State of Hawaii Department of Land and Natural Resources/
Historic Preservation Division
State of Hawaii Department of Transportation
City and County of Honolulu Dept of Planning and Permitting
City and County of Honolulu Dept of Design and Construction
Hawaiian Electric Co.
Verizon Hawaii
Oceanic Time Warner Cable

Impacts: No significant impacts were determined from construction and operation of the Anuenue Radio tower, antennas, and facilities at the Koko Head site.

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PREFACE

Chapter 343, Hawaii Revised Statutes (HRS), as amended, Environmental Impact Statements, requires that a government agency or a private developer proposing to undertake a project consider the potential environmental impacts of the proposed project by preparing an assessment. Use of public funds for a project is among the criteria set forth in Chapter 343, HRS, which requires preparation of an environmental assessment. The Anuenue (formerly Rainbow) Radio Tower and Facilities will be constructed and operated with funds provided by the State of Hawaii Department of Accounting and General Services (DAGS).

This Environmental Assessment (EA) has been prepared to meet the requirements of Chapter 343, HRS, as amended, and Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules. A Finding of No Significant Impact (FONSI) is anticipated for the Anuenue Radio Facility at the Koko Head project site.

The State Land Use Commission designates the Koko Head project site in the Conservation District. A Conservation District Use Application (CDUA) permit will be approved by the Land Board will be required to construct and operate the Anuenue Radio Facility at the Koko Head project site.

The Anuenue Radio Facility at the Koko Head project site is located in the City and County of Honolulu Special Management Area (SMA). Construction of the Anuenue Radio Facility at the Koko Head project site will require a SMA Use Permit (SMP).

1. INTRODUCTION

1.1 Project Background

The State of Hawaii Department of Accounting and General Services (DAGS) through its Information and Communication Service Division (ICSD) carries out the responsibilities for statewide telecommunications for the State of Hawaii. The ICSD owns and operates microwave radio transmission systems, antennas, towers, buildings, and related communications facilities and infrastructure throughout the islands. The ICSD also plans, coordinates, organizes, directs, and administers services to ensure the efficient and effective development of communications systems. Over the years, public safety, emergency response, law enforcement, and public service agencies have benefited from the significant advances in communications technology. As a result of these advances, to fulfill their public service missions, government agencies rely on telecommunications to communicate and transmit information and data between offices and facilities as well as to communicate with personnel in the field.

1.2 Purpose and Need

The primary purpose of the Anuenue (formerly Rainbow) Radio Facilities at the Koko Head project site will be to support the rebuilding and modernization of a statewide microwave communication system to be owned by DAGS and used as part of a communications system shared by the State DAGS and the U.S. Coast Guard (USCG). This shared system, the Anuenue Radio system is a follow-on to the "Hawaii Rainbow Communications System," commonly known as "Rainbow," which was an agreement among three State and three federal agencies to share infrastructure and microwave radio transmission systems. The Rainbow resulted in a statewide system of radio tower facilities and microwave radio interconnections that were used by federal, State, and local agencies in support of their law enforcement, public safety, emergency response, and civil defense missions. The Rainbow agreement dissolved at the end of September 2002.

An additional primary purpose of the Koko Head Radio Facility will be to replace the existing City and County of Honolulu (City) communications facilities, which include a building and several antenna support structures. The single new State tower will be

used to support antennas of all of the existing State and City communications users as well as those of some federal government agencies. Although the State will own and maintain the tower and building exterior, the City will have quiet enjoyment of the use of their own private interior spaces in the new building. The City will assume responsibility for their interior spaces as well as the installation, operation, routine and emergency maintenance, and replacement, upgrade, and/or removal costs of the City owned and sponsored communications equipment and antennas. The City will also be responsible for the relocation of City owned equipment from the old City facility to the new facility and for the demolition and removal of the City building and antenna support structures once they are retired. City agencies will operate various microwave radio links and land mobile radio systems in the Anuenue Radio Facility at the Koko Head project site.

The Anuenue Radio Facility at the Koko Head project site will be totally funded by the State of Hawaii and will also support the communications systems of other public service agencies such as the State of Hawaii Department of Defense Civil Defense Division, the State of Hawaii Department of Health Emergency Medical Services System, the Federal Bureau of Investigation; the City 800 MHz trunked radio system used by City Police Department and Oahu Civil Defense, the City Fire Department, and the City Department of Parks & Recreation. The Anuenue Radio Facility at the Koko Head project site will be a public facility to be used by public agencies for public purposes.

The Anuenue Radio Facility at the Koko Head project site is one of three radio facilities that was funded by the State Legislature to support the modernization of the Anuenue Radio system. Legislative funding was sought and provided with the understanding that the three facilities to be developed would also accommodate the radio communications infrastructure needs of other State and county agencies. The new Anuenue Radio Facility at the Koko Head project site will facilitate the operation of Federal, City, and State agency land mobile radio systems that can provide voice and data communication services for users in the field that are within view of the Koko Head Facility.

The purpose of the Anuenue Radio system is to install a modern high capacity digital interconnect to replace the Rainbow analog radio channels. The new digital interconnect will facilitate voice, digital radio, video, and data communications. The

backbone of the new digital system will have the capability to transmit 155 Mbit/s (megabits per second), which is equivalent to 2,016 traditional voice channels or about 17 times the capacity of the Rainbow analog system. The conversion to a digital system is needed to handle the expanding voice and data communications requirements of the public safety and public service communities. The relocation of services to higher frequency microwave bands was forced both by the Federally-mandated reassignment of analog microwave frequencies to personal communications systems (such as cellular telephones) and the growing need of public safety agencies for higher capacity communications services to properly serve the public in the coming years.

In addition to the Koko Head facility, DAGS intends to construct facilities on central Molokai and northwestern Hawaii for the Anuenue Radio system. The USCG is refurbishing its existing facilities at Mauna Kapu, Oahu and Haleakala, Maui and will construct new facilities in central Oahu and west Hawaii to accommodate the new digital microwave radio system. Existing State facilities elsewhere on Oahu, Kauai, Lanai, Maui, and Hawaii will also be used to support the Anuenue Radio system. The ICSD will license, own, and operate the microwave radio links that will connect the Anuenue Radio Facility at the Koko Head project site to USCG radio sites on Maui and Hawaii.

Construction of the new Koko Head Radio Facility is necessary for the Anuenue system to meet path clearance criteria for radio line-of-sight and to minimize station-to-station path lengths required for operation in the 6 GHz and 11 GHz microwave bands. The retired Rainbow microwave system was able to use lower frequencies (2 GHz band) that could span great distances. However, although the retired system could use fewer stations, it was constrained by a limited payload capacity. Further, frequencies in the 2 GHz range are no longer available for use as they were reassigned by the Federal government to cellular services and other bandwidth hungry innovative services. In any case, long path channel assignments for high capacity radio links were rarely, if ever, available in the 2 GHz band. The Anuenue Radio system can only operate on frequencies which are available to support high capacity services in the 6 GHz and 11 GHz bands available for licensing by the State. Operation in these higher frequency bands requires closer spacing between the microwave repeater stations which has created the need to construct new facilities and towers.

Construction of the Koko Head Radio Facility is also necessary for the modernization of the City facilities currently located on Koko Head. The existing towers, pole and metal monopole are all in need of repair and have questionable structural integrity. The City building has insufficient space to meet the existing and future needs of the City and could not support the program requirements of the Anuenue and other State and Federal users. The lack of space within the existing City building is partially due to the State and Federal agency radio systems already housed in the building.

The Anuenue Radio Facility at the Koko Head project site will significantly upgrade the infrastructure needed to support communications for law enforcement, emergency and disaster response, and homeland security agencies at all levels of government.

1.3 Project Location and Conditions

1.3.1 Project Location

The project site is located about 11 miles east of downtown Honolulu and 0.9 miles (4,500 feet) south of Kalanianaʻole Highway, State Route 72, in Maunaloa in the eastern portion of Oahu within the Hanauma Bay Nature Preserve. The project site will occupy an area of about 8,480 square feet (0.195 acres) on the south slope of Koko Head at an elevation of about 612 feet mean sea level (msl), or about 28 feet below Koko Head peak elevation of 640 feet msl. The project site will be located adjacent to and south of the existing City and County of Honolulu communication facility which lies at an elevation of about 629 feet msl.

Starting in June 1950, or for over 50 years, various sites on Koko Head have been used for communications and navigation facilities. The facilities of Verizon and several cellular and wireless carriers are clustered on the inland portion of Koko Head about 1,500 feet (over a ¼-mile) north of the project site. The US Department of Transportation Federal Aviation Administration (FAA) VORTAC (Very High Frequency Omni Range Tactical Navigation) occupies the top of the hill, about 1,000 feet north of the project site. One function of VORTAC is to transmit a unique signal that allows an aircraft aloft to determine its bearing relative to the station. The City facility and those of Nextel and Oceanic Time Warner are located more towards the ocean end of the hill.

Figure 1.1 shows the project location map. Figure 1.2 shows the project site map. Figure 1.3 shows the tax map. Figure 1.4 shows the project site topographic map. Figure 1.5 shows site photographs.

1.3.2 Existing Project Site Conditions

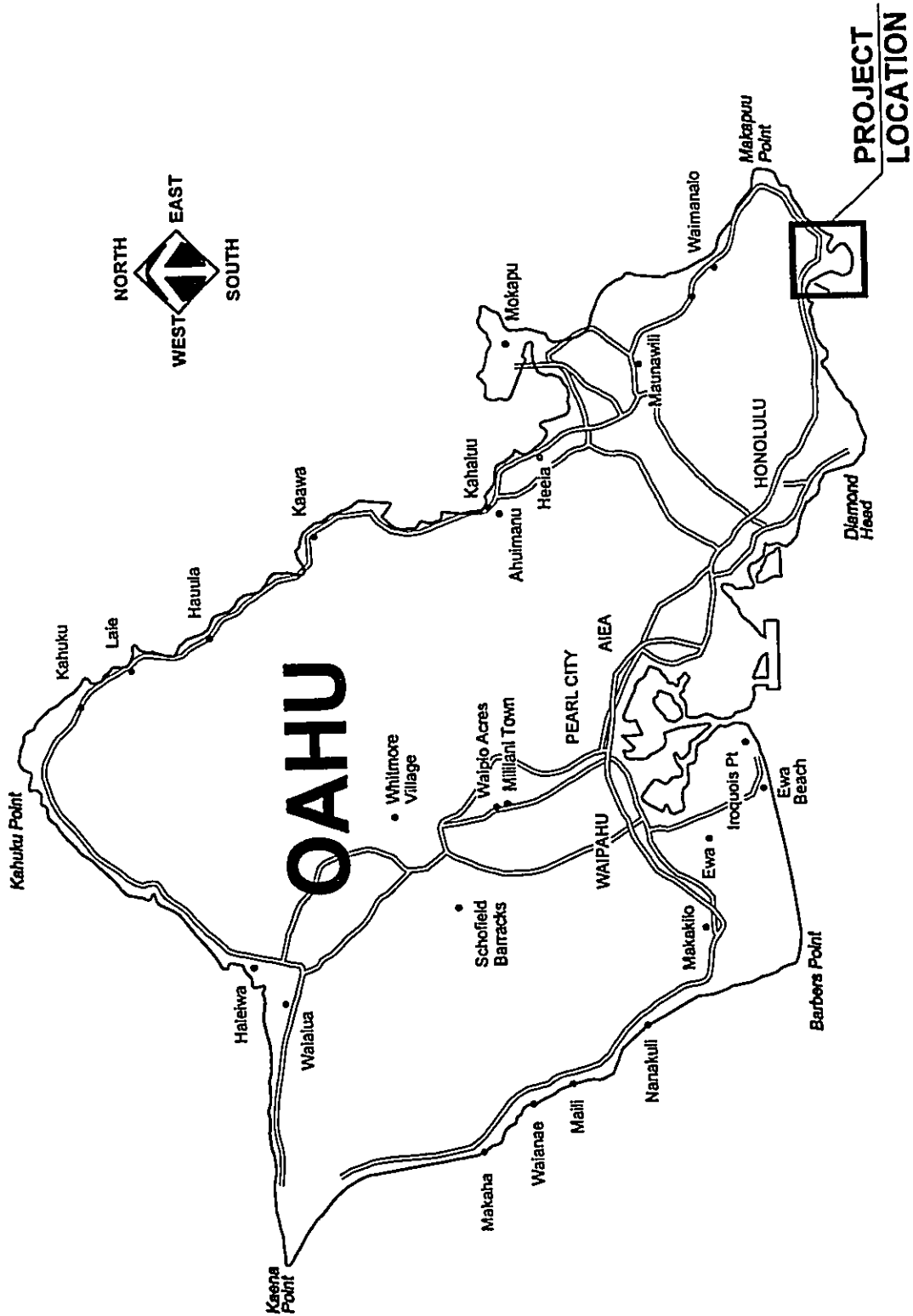
The Anuenue Radio Facility at the Koko Head project site is located within Tax Map Key: 3-9-012:002, and will be used under a Memorandum of Agreement (MOA) between the State of Hawaii and the City and County of Honolulu, the landowner. The approximately 8,480 square-foot project site is currently an open, undeveloped grass-covered portion of the Koko Head and lies within Hanauma Bay Nature Preserve. No buildings or other structures are located on the project site. An underground bunker constructed during World War II is located to the south and east of the project site and will not be disturbed. See Figure 1.4.

The project site will be located adjacent to and south of the existing City and County of Honolulu communication facility that includes a total of four antenna support structures. There are two three leg self-supported towers, one 50 feet tall and the other 20 feet tall, a 50-foot high monopole tower, and 30-foot high monopole tower. The 20-foot tall three-leg tower is constructed on the roof of an underground bunker. In addition, the City and County of Honolulu facility contains a 400-square foot concrete building and an above ground propane fuel tank. A 6-foot high security fence encloses the towers and fuel tank. The City and County of Honolulu functions will be relocated to the shared facilities within the Anuenue Radio Facility at the Koko Head project site. Once the shared facility is complete, the City will remove the towers and building. The above ground propane tank will remain and be used to provide fuel for the City' emergency generator in the shared facility.

The FAA VORTAC transmitter is located slightly more than 1,000 feet to the northwest of the project site. Other nearby users include Nextel, located about 180 feet to the southeast and about 20 feet lower than the project site, and Oceanic Time Warner, located about 160 feet to the south and 18 feet lower.

The US Department of the Interior Geological Survey (USGS), benchmark monument is located at elevation 640 feet msl and about 195 feet north of the project site.

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Figure No.

ANJENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE



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Project Location Map

1.1



Figure No.

Project Site Map

1.2

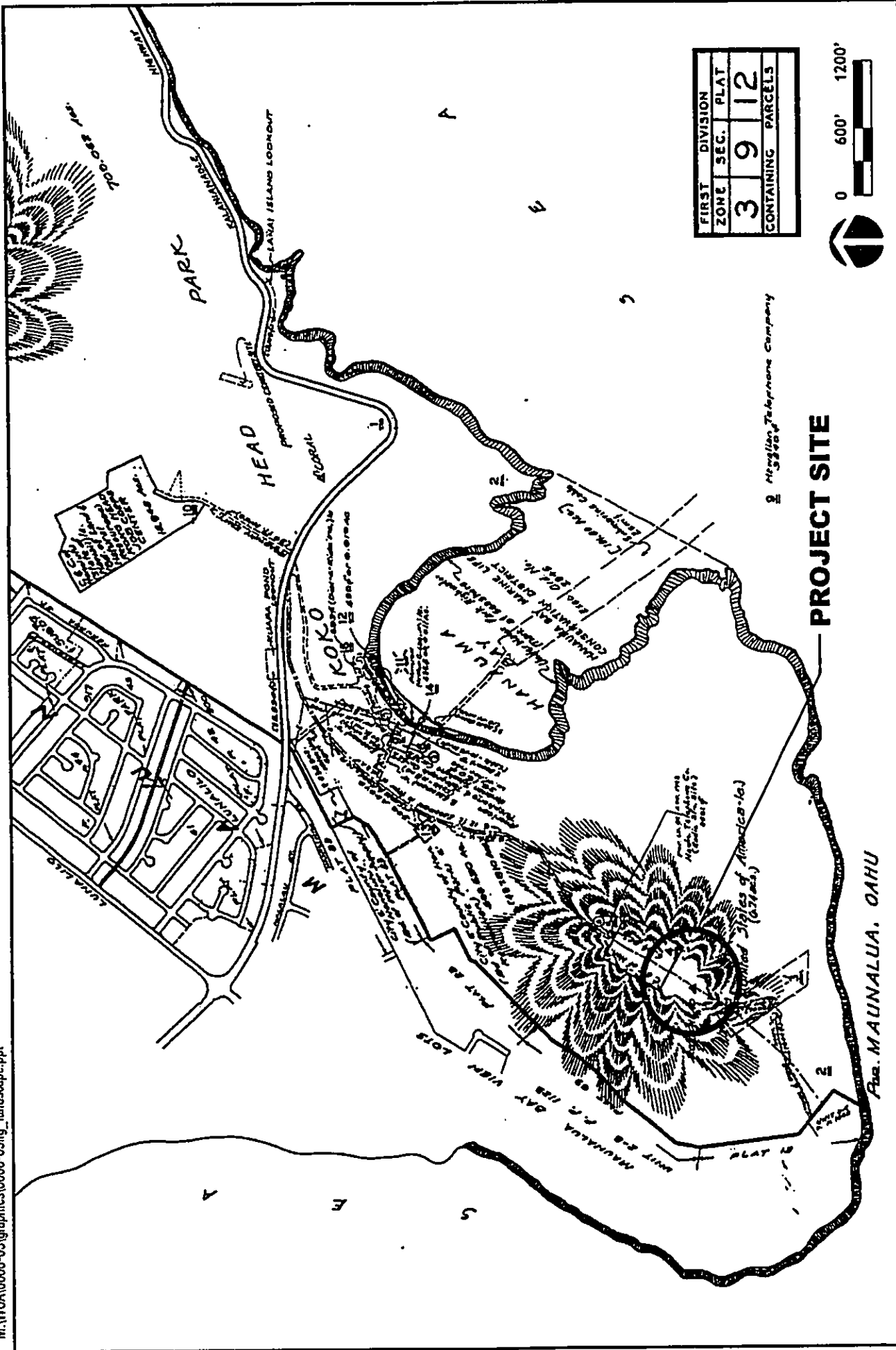
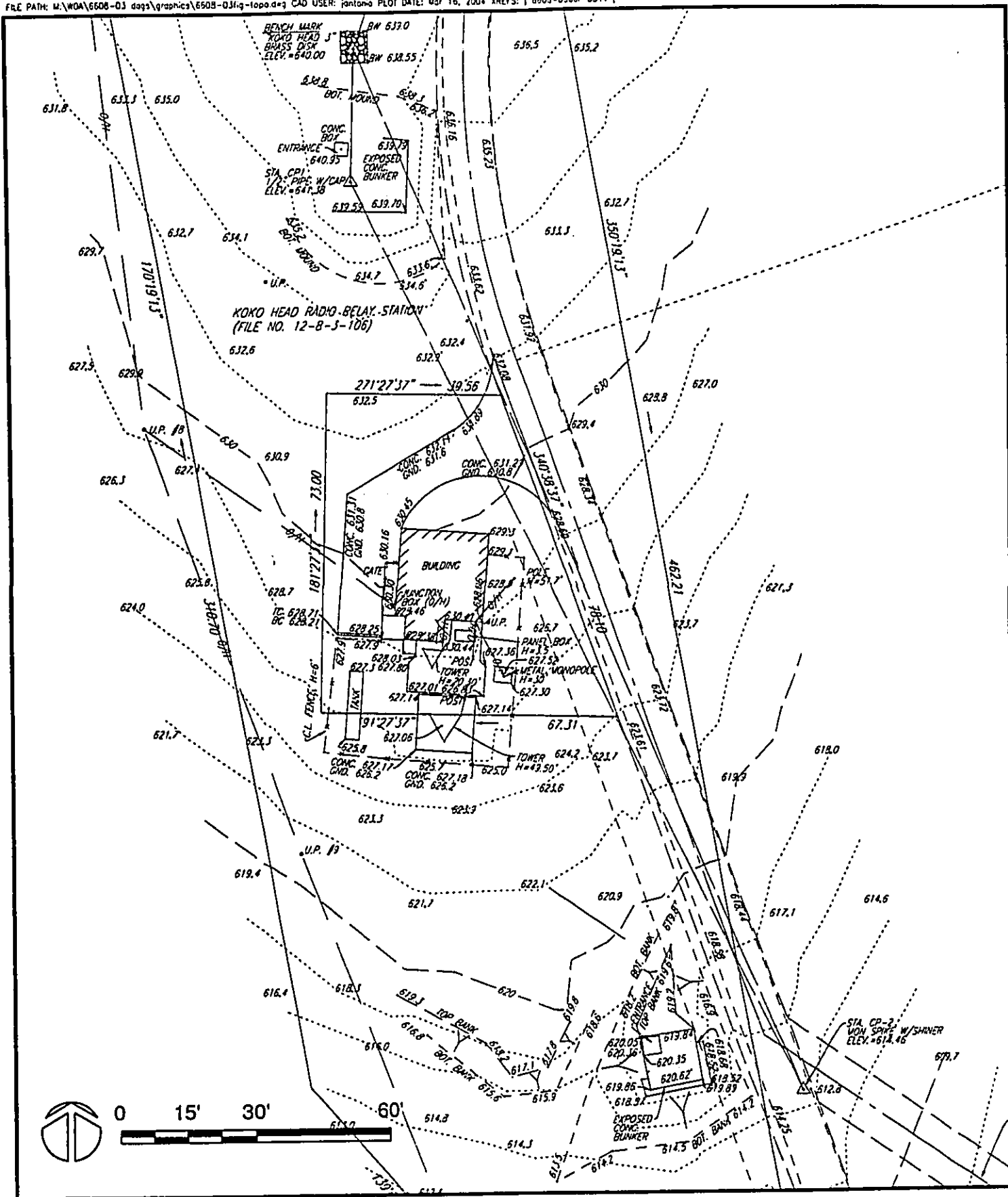


Figure No.

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1.3



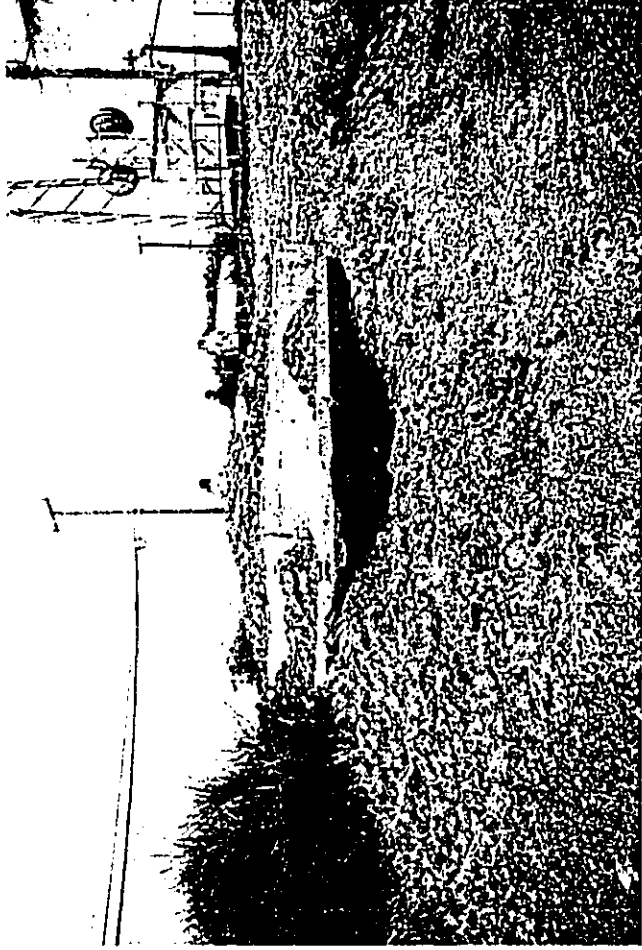
ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Figure No.

Project Site Topographic Map

1.4

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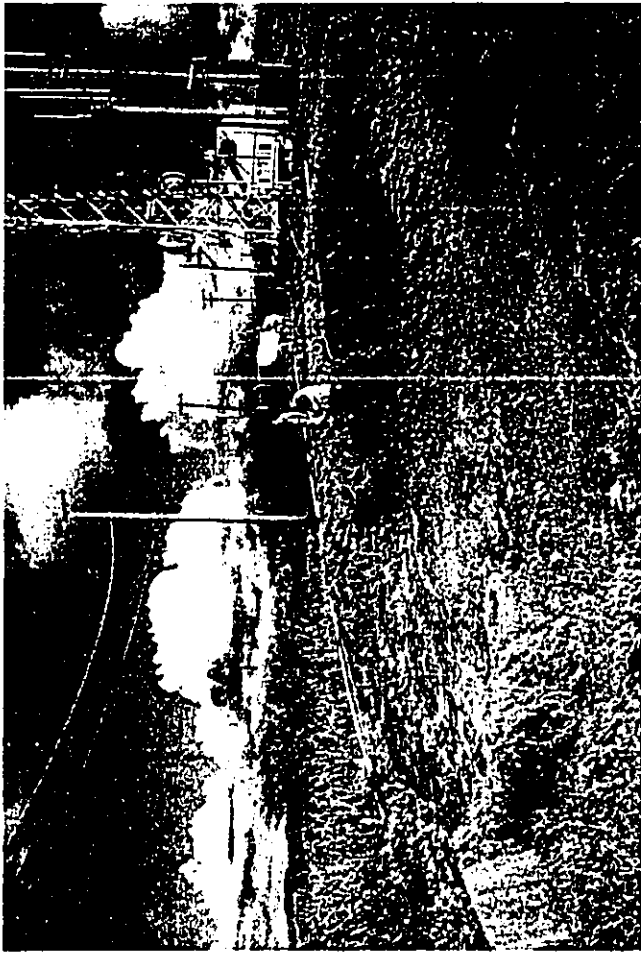
Project site underground bunker to remain



View of existing City facilities to be removed



Project site view from the south



Project site view from the southeast

1.3.3 Other Project Site Data

The project site is designated Preservation in the East Honolulu Sustainable Communities Plan (April 1999). The project site City and County of Honolulu zoning district is P-1 Restricted Preservation. The project site is located within the City and County of Honolulu Special Management Area (SMA). The Anuenue Radio Facility at the Koko Head project site will be a public facility to be used by public agencies for public purposes. However, a Special Management Area Permit approved by the City and County of Honolulu Council will be required to construct and operate the Anuenue Radio Facility at the Koko Head project site.

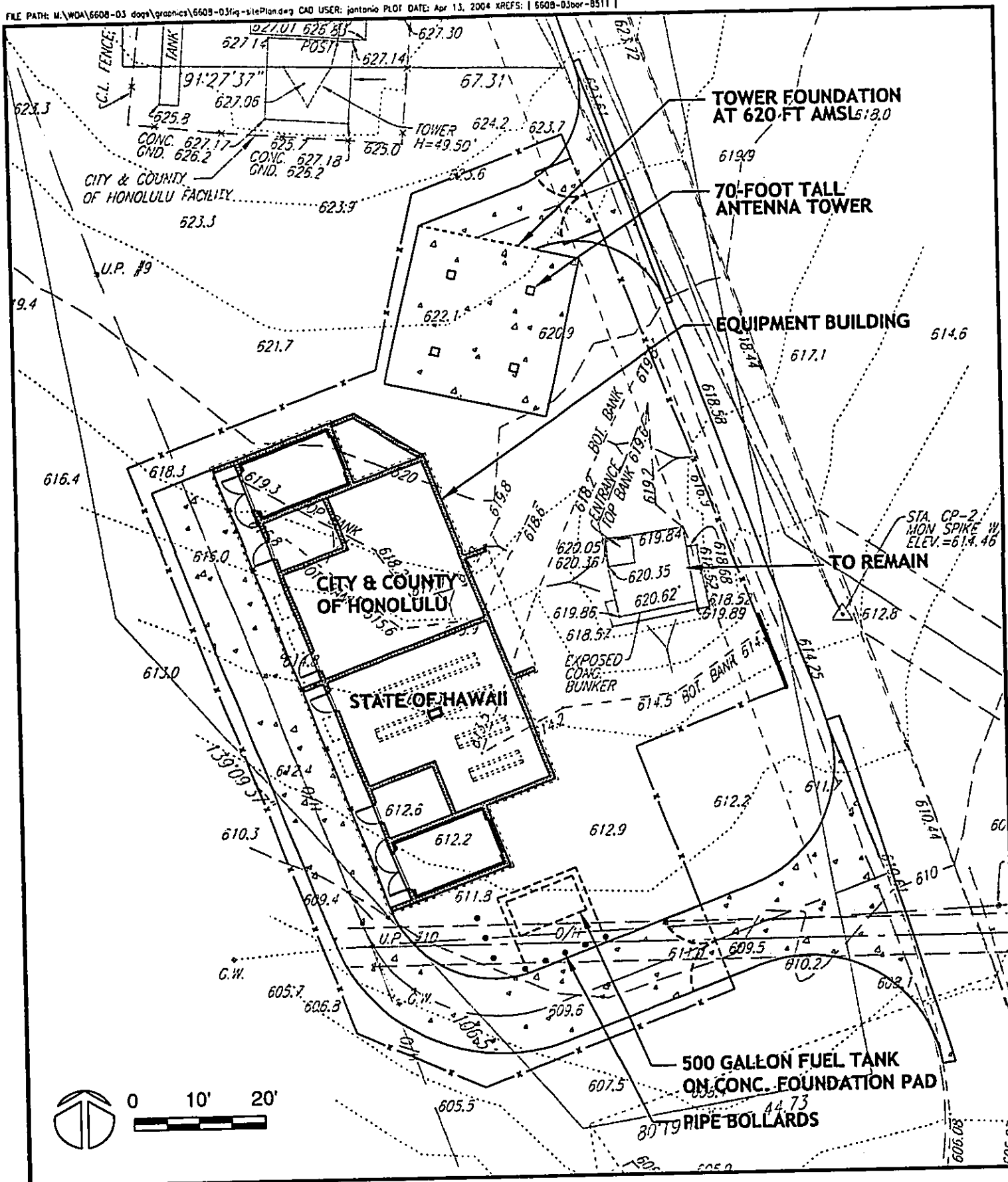
The State Land Use Commission designates the Koko Head project site in the Conservation District. A Conservation District Use Application (CDUA) permit approved by the State of Hawaii Land Board will be required to construct and operate the Anuenue Radio Facility at the Koko Head project site.

1.4 Project Description

1.4.1 Project Site Plan

As previously discussed, DAGS will use the project site under a Memorandum of Agreement (MOA) between the State and the City and County of Honolulu. The project site will not be subdivided into a separate parcel. The project site will encompass a 8,480 square-foot area and include facilities to be shared by the State of Hawaii and the City and County of Honolulu. Access to the project site will be from the south via a new access driveway connected to the existing improved road. The new driveway will be routed to avoid the underground bunker. An 8-foot high security fence topped with a three strand barbed tape will enclose the facilities to prevent unauthorized access. Figure 1.6 shows the site plan.

The project site will include one 70-foot tall four-legged self-supporting tower, retaining walls on the west, north, and east sides of the building, an equipment building with covered lanai, and an exterior double-walled, above-ground diesel fuel tank protected by surrounding bollards. An 8-foot high chain link security fence topped with a three strand barbed tape will be placed around the building and tower to protect the tower and to



ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Figure No.

Project Site Plan

1.6

prevent access to the building and tower. The security fencing will also enclose the underground bunker.

The areas immediately surrounding the tower and to the west of the equipment building will be paved or covered with gravel to limit weed growth within the project site. The paved/gravel area along the west side of the building will provide access to the building. The building and fencing will be sited to avoid disturbance to the underground bunker located south of the project site. See Figure 1.6.

The project site will be graded and sloped slightly to the west to allow surface runoff to sheet flow off the building to the west. The project site will require a cut of about 4 to 5 feet to place the building. The design plans show the equipment building will be at elevation about 612 feet msl which will place it about 17 feet below the existing City facilities, which will be removed by the City after completion of the new building and tower.

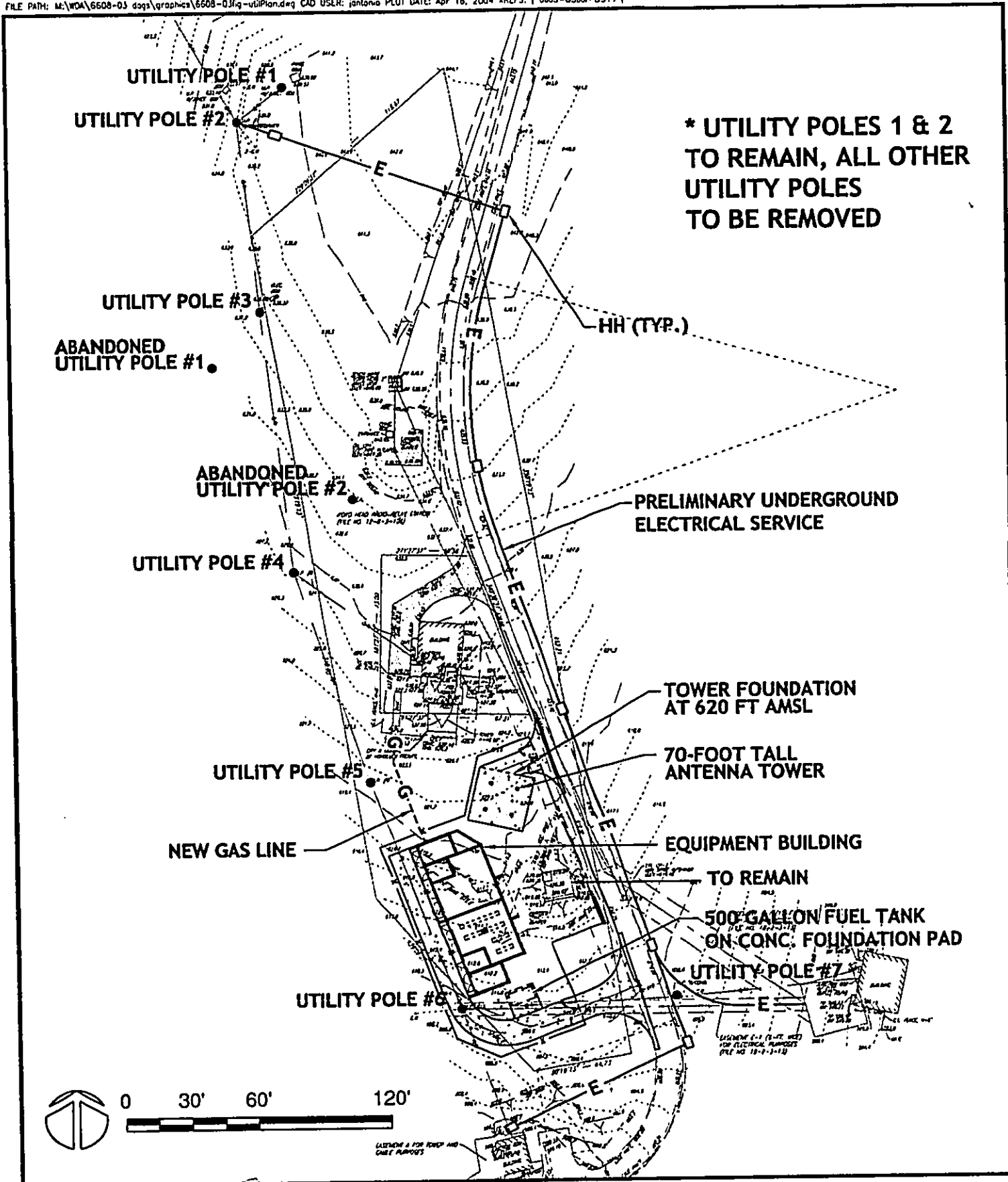
The tower will be placed on its own foundation and will be located at about elevation 620 feet msl, which will place the top of the 70-foot tower at elevation 690, or about 12 feet above the existing City 50-foot tall tower.

The northern and eastern walls of the building will be cut into the slope and will be used to retain a portion of the slope. About 4 to 5-feet of the eastern wall will be below the grade of the slope. Pedestrian access will be possible at the southern end of the building along the eastern wall.

No potable water will be provided at the project site.

No toilet facilities will be provided in the building or at the project site.

In addition to construction of the facility and tower, as part of the project, the electrical power and other utility lines will be routed to underground conduits located adjacent to the access road and the five of the existing active above ground utility poles will be removed. The two active poles which provide service the FAA VORTAC and other users will remain. The two other abandoned wooden poles in the vicinity of the project site will also be removed. Thus a total of seven above ground utility poles will be removed. Figure 1.7 shows the site utility plan.



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CORPORATION

Site Utility Plan

Figure No.

1.7

Contractor personnel and other visitors to the project site can use the area on the west side of the building to park vehicles while servicing and maintaining the equipment and the facilities and while putting fuel into the exterior above ground fuel tank.

1.4.2 Project Access

Access to the project site will be via an existing 10-foot wide paved access road which starts at a locked gate located at the vehicle access entrance to the Hanauma Bay Nature Preserve and provides access to all of the other communication facilities located on Koko Head and the Board of Water Supply storage tank. The City and County of Honolulu Department of Parks & Recreation controls the access road to the project site. The security fencing for the project site will be placed so that vehicle and pedestrian use of the existing access road will not be affected. Vehicle traffic and pedestrians can continue their current use of the existing access road.

1.4.3 Equipment Building Plan

The State and the City and County of Honolulu will share the equipment building with the State facilities occupying half of the building and the City the other half. The building will be designed with separate areas and access for the State and the City functions and equipment. The building will be a single story structure with a total area of about 1,828 square feet equally divided between the State and the City.

The new building will be designed and constructed such that the bulk of the structure will be below the existing grade to reduce the visual impact on the ridgeline. Once the City building and antenna support structures are retired and removed, the new tower will all that will be visible as a result of this effort. This should minimize the visual above ground obstructions on the southern end Koko Head from afar.

The State's portion of the building will consist of a three room, 914-square foot (SF) area with 8-inch thick reinforced concrete-masonry unit (CMU) walls and concrete slab floors and will be constructed to accommodate a 630-SF radio equipment room, a 114-SF rectifier room, and a 170-SF emergency generator room. A 3-foot wide roof overhang will be provided on the east-facing wall to protect openings in the wall for the approximately 12 elliptical microwave waveguide cables (typically 2.21" by 1.26" oval in

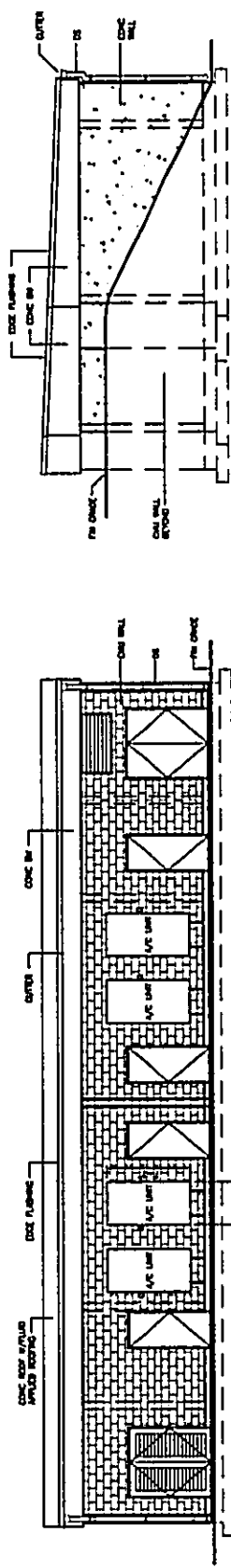
cross section) and 10 coaxial cables (typically 0.63" to 1.09" in diameter) that will be installed through the wall openings. Figure 1.8 shows the building floor plan. Figure 1.9 shows the building elevations.

The west side of the equipment building will have a 3-foot wide roof overhang to provide protection against wind and rain for the exterior entrances to the radio and battery rooms and the emergency generator. Louvered openings or doors will be provided on the west and east walls of the generator room, as needed. See Figure 1.9.

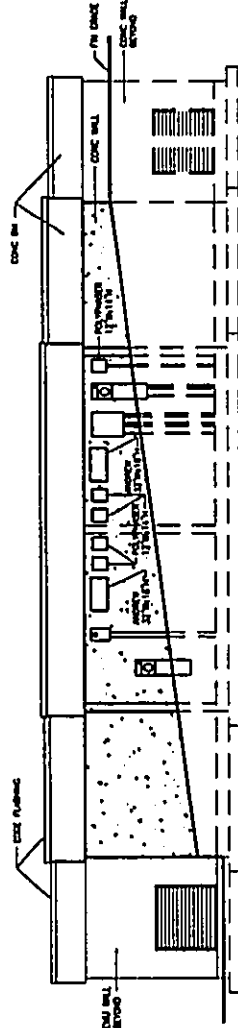
The radio room will be designed with 11-foot 8-inch high clear height ceiling to accommodate 8-foot tall equipment racks, overhead wiring trays, microwave waveguide and land mobile radio (LMR) coaxial cables, and waveguide support hardware. Typically, the equipment racks will be purchased and installed as part of each user agency's radio installation project. Although agencies may share the space or equipment within one rack (as will be done for the Anuenue microwave system), typically, each agency's systems will be grouped into its own rack and/or cabinet group.

An integrated approach will be taken to protect the entire facility from the damage caused by lightning strikes. The equipment racks will be isolated from the floor with an insulation gasket as part of the effort to protect the equipment from damage caused by lightning strikes. An internal ground halo will be provided for connection of non-active metallic items such as doorframes and cable racks. Surge protected entryways will be required for all waveguide, coaxial, signal (such as telephone, security cameras, or similar external system connections), and electrical power connections. Protection will also include the establishment of a single point ground for user equipment. The tower and the building ground systems will be interconnected to both a ground well, buried ground halos, and an exothermically welded connection to the reinforcing bars of the tower (a Ufer ground).

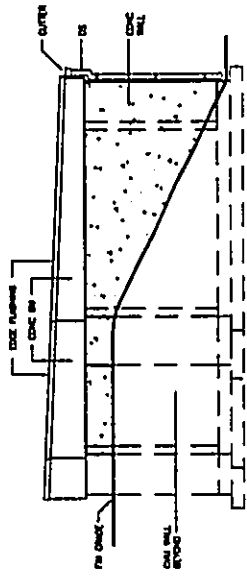
The 114-SF rectifier room will house several independent backup battery systems. These battery systems are comprised of strings of valve regulated lead acid (VRLA) batteries cells which are an improved version of the lead acid batteries in found most vehicles. However, the VRLA batteries are supplied with a gelled electrolyte, do not require water, and have been designed not to leak. The VRLA batteries are not classified as hazardous materials. As such, a spill containment system is not required



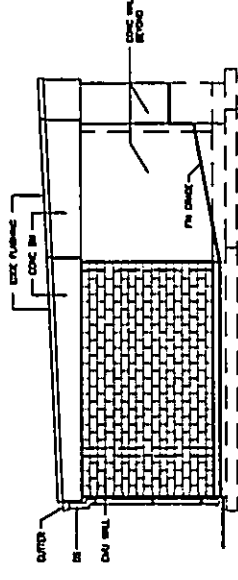
WEST ELEVATION



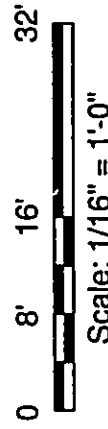
EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION



Wilson Okamoto
ARCHITECTS

ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Building Elevations

Figure No.

1.9

for the batteries. In the event of leak, the VRLA batteries will be equipped with flame arresting safety vents.

The batteries to be installed will be similar to those found at other State facilities which have used 48 individual cells, each weighing 88 pounds, to make a battery that will support the radio equipment for 15 hours without the use of commercial power. Such a battery contains about 920 pounds of gelled electrolyte and 3,360 pounds of lead plates.

Rectifiers normally provide direct current (DC) power to the critical radio equipment and keep the batteries under constant charge. The rectifiers will operate from commercial power backed up by an auto start generator. The use of the commercial power/battery/generator redundancy is standard procedure in the telecommunications industry and at public safety facilities.

Although VRLA batteries have a projected service life of about 20 years, experience to date indicates that replacement should be scheduled at 10-year intervals. It is ICSD policy that all removed batteries be recycled, not disposed, in accordance with all federal and State environmental regulations.

The VRLA batteries will be tested, cleaned, and serviced semi-annually by contractor personnel.

The commercial power will be routed to the project site via an underground conduit.

The 170-square foot State generator room will house a 40-kilowatt (kW) diesel generator to provide emergency power in the event of a power outage to the commercial system. The DAGS specifications require that the emergency system provide power to the facility in the event of an outage for a 7-day period. The emergency generator will be sized to provide sufficient power for charging the batteries, running the air conditioning for the building, and other facility needs in the event of a commercial system power outage. See Figure 1.8.

The diesel fuel for the generator will be stored in a separate two-section double-walled Convault style above ground tank. It is expected that at least a 500-gallon total fuel capacity will be required to provide for the desired 7-day supply of fuel. The above ground double-walled tank will not require a spill containment system around its base.

The City and County of Honolulu has permitted the use of double-walled above ground fuel tanks.

The emergency generator will be tested by operating it once or twice a month for period of about 3 to 4 hours under load test to ensure that is operational during emergency situations. Contractor personnel will conduct the tests and maintain the emergency power system.

The building will be equipped with a building alarm system to telemeter door entry, high temperature conditions, and fire alarms. The equipment room and rectifier room will be equipped with a fire suppression system suitable for use in rooms with electronic equipment. The fire suppression system will use a compound of carbon, fluorine, and hydrogen as the suppressant that is non-ozone depleting and safe for use in occupied spaces. City and County of Honolulu Fire Department fire protection will be needed at the project site to safely enter the building in the event of a fire and/or the discharge of the fire suppression system.

The City's portion of the building will have the same square foot areas and will be designed to function in a manner similar to the State's uses. Based on the State's and City's requirements, the total building will have an area of 1,828 SF. See Figure 1.8.

Once construction of the building and tower are completed, the City would remove its existing facilities, including the two three leg self supported towers and antennas, and the two monopoles and antennas. The above ground propane tank will be retained and relocated to supply fuel to the City's emergency generator in the new building.

1.4.3.1 Tower and Building Design Criteria

The DAGS specifications require the building, tower, and antennas remain operational at wind speeds up to 110 miles per hour (mph) and survive wind speeds up to 155 mph. Wind speeds of 110 mph are the highest sustained winds expected in a Safir-Simpson Category 2 hurricane. Sustained wind speeds of 155 mph are the highest reached in a Safir-Simpson Category 4 hurricane.

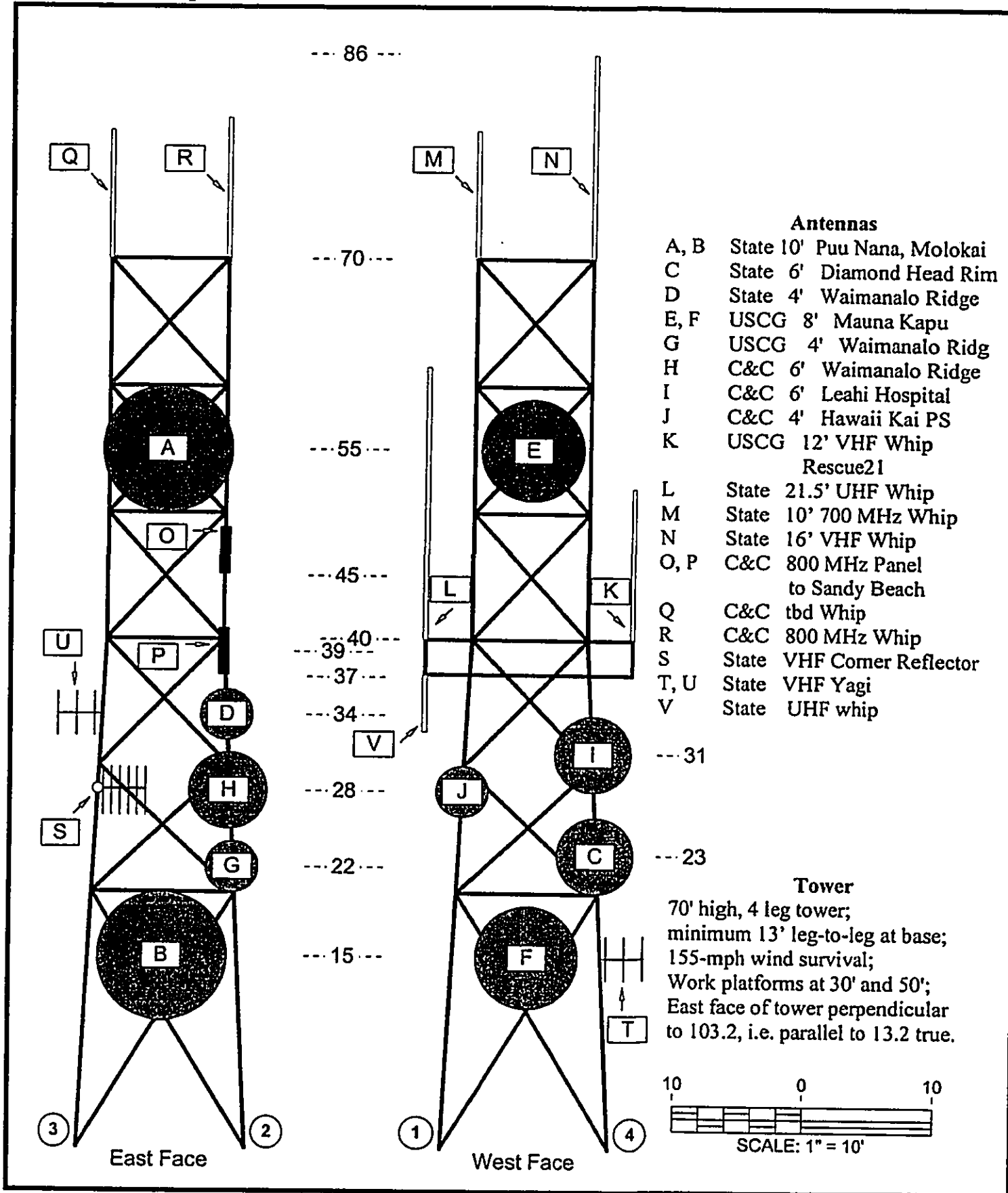
1.4.4 Tower and Antennas

A four-leg self-supporting pipe-leg, 70-foot high tower will be used to mount a total of 22 antennas including 10 solid microwave antennas, the two largest of which will be 10-foot in diameter. The tower will also support two 8-foot and three 6-foot diameter solid microwave antennas. The other antennas include whips and side mounted smaller antennas such as directional yagi and reflector antennas. The tower will include work platforms, internal climbing ladders equipped with a safety climb device, ladder and trap door locks, waveguide ladder, and covered transmission line bridges between the tower and the building entry point. The tower will initially be left unpainted which will be a light gray shade due to galvanized finish. Eventually the tower will be painted a light gray shade similar to the color of the galvanized finish. Figure 1.10 shows the tower plan, Figure 1.11 the antenna plan, and Figure 1.12 the antenna coverage plan.

A FAA Form 7460-1, Notice of Proposed Construction or Alteration will be filed by the DAGS with the FAA to obtain approvals for the location and height of the tower and the use of radio transmitting facilities in the vicinity of the nearby FAA VOTAC facility. The FAA Aeronautical Study will determine if the tower exceeds obstruction standards or would otherwise be a hazard to air navigation and will determine if any marking and lighting are necessary for aviation safety. Based on previous experience, it is expected that the FAA will not require markings and lighting.

1.4.5 Electromagnetic Radiation (EMR)

The DAGS Anuenue Radio Facility at the Koko Head project site will support multiple radio transmitters that operate in two broad categories: point-to-point microwave and land mobile radio (LMR). The new point-to-point microwave transmitters to be installed by the State will operate in the 6 GHz and 11 GHz microwave bands. Some of the City's systems that will be relocated to the new tower also operate in the 6 GHz microwave band. All of these microwave systems will transmit continuously and concentrate their emission in a narrow highly directional beam that does not move. None of the energy from these microwave transmitters is expected to reach, spill, or scatter into any nearby surface areas or structures that can be accessed by persons near the project site.



ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Figure No.

Tower Plan

1.10

State of Hawaii/City & County of Honolulu Koko Head Shared 70-Foot Tower

Design Requirements

1. 70' high, 4 leg tower; minimum 13' leg-to-leg at base; Microflex 108-M8xx-70M
2. 155-mph wind survival with NO radial ice.
3. Work platforms at 30' and 50'.
4. Internal climbing ladder with Safety-Climb Cable.
5. Waveguide ladder.
6. Oversize anchor bolts.
7. East face of tower must be perpendicular to 103.2 degree bearing; i.e. parallel to 13.2 true.

Microwave Antennas

- A,B State: 2 each, 10' Diameter High Performance Antennas, WEUHX10-59J, c/l = 15' & 55' to Puu Nana
- C State: 1 each, 6' Diameter High Perf. Antenna, WEUHX6-107J, c/l = 23' to Diamond Head Rim
- D State: 1 each, 4' Diameter High Perf. Antenna, WEUHX4-107, c/l = 34' to Waimanalo Ridge
- E,F USCG: 2 each, 8' Diameter High Perf. Antennas, HP8-71W, c/l = 15' & 55' to Mauna Kapu
- G USCG: 1 each, 4' Diameter High Perf. Antenna, PL4-70, c/l = 22' to Waimanalo Ridge
- H C&C: 1 each, 6' Diameter High Perf. Antenna, HP6-59W, c/l = 28' to Waimanalo Ridge
- I C&C: 1 each, 6' Diameter High Perf. Antenna, HP6-59W, c/l = 31' to Leahi Hospital
- J C&C: 1 each, 4' Diameter High Perf. Antenna, VHP4-107A, c/l = 28' to Hawaii Kai Police Station

Non-Microwave Antennas

- K USCG: 1 each 12' Rescue21 VHF Whip Antenna, base at 40' (south end of west face outrigger similar to Microflex B3134, with just face and tie-back arm components)
- L State: 1 each 21.5' UHF Whip Antenna, base at 40' (north end of west face outrigger)
- M State: 1 each 700 MHz Antenna TxRx #101-83B-09-0-03, base at 70' (top of leg 1)
- N State: 1 each VHF Antenna Scala OGB4-150 VHF whip antenna, base at 70' (top of leg 4)
- O,P C&C: 2 each 800 MHz panel antennas; c/l at 39' & 47'; az = Sandy Beach
- Q C&C: tbd whip (top of leg 3)
- R C&C: 1 each 800 MHz antenna TxRx #101-89A-09-0-03N, base at 70' (top of leg 2)
- S State: 1 each VHF Corner Reflector, c/l at 28'
- T, U State: 2 each VHF Yagi, c/l at 15' and 34'
- V State: 1 each UHF whip, inverted, base at 37'



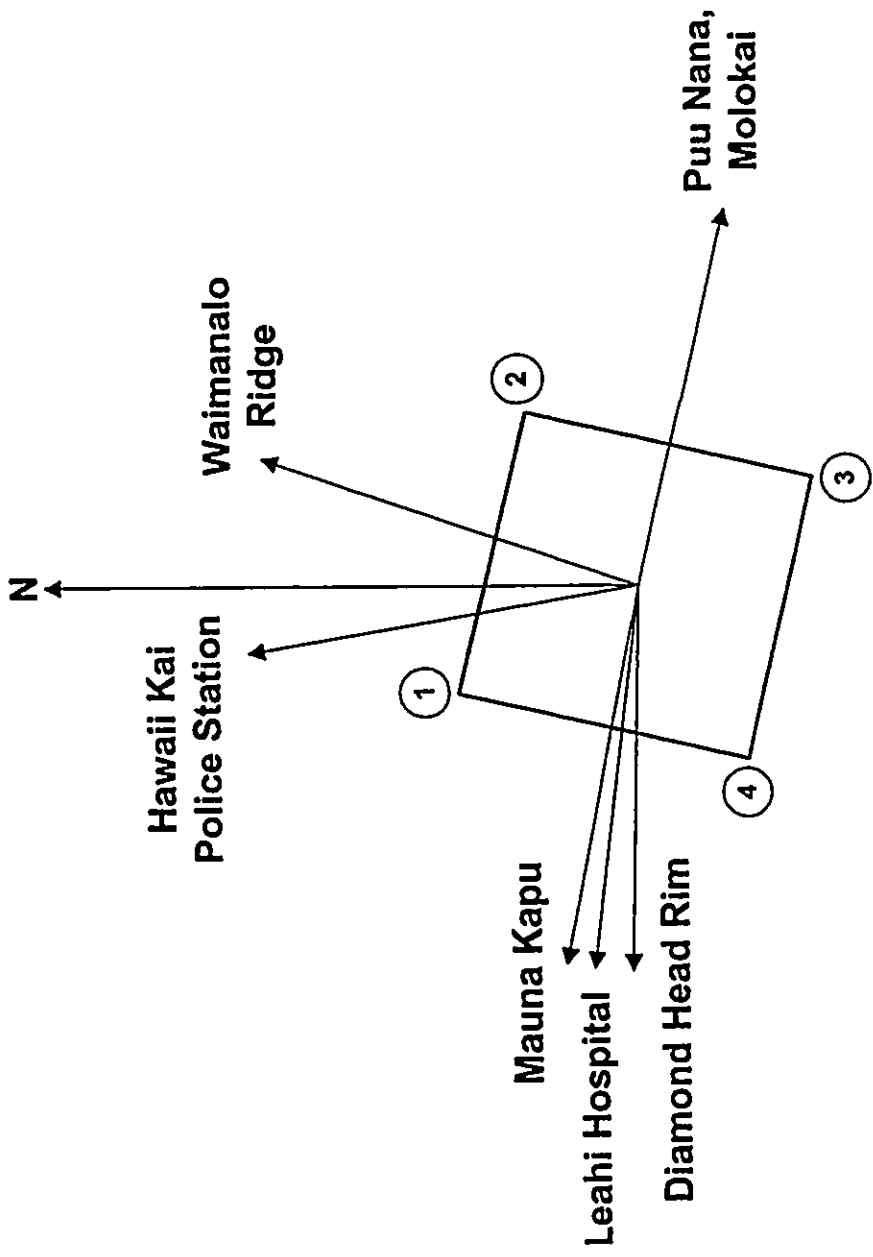
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ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Antenna Plan

Figure No.

1.11



East face of tower must be perpendicular to
103.2 degree bearing; i.e. parallel to 13.2 true.



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ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Figure No.

Antenna Coverage Plan

1.12

The microwave transmitter output powers are typically in the range of a watt or less. The LMR systems expected to be installed at the Anuenue Radio Facilities at Koko Head will operate on frequencies that range from just above 100 MHz to just under 900 MHz. LMR systems transmit intermittently with their duty cycles related to system traffic. A typical LMR system would have a transmitter output power of 100 watts (often less) and transmit in an omni-directional (or wide sector) pattern with energy concentrated downhill or towards the horizon. As part of the MOA with the City, the State has agreed to be responsible for conducting the initial electromagnetic emission study after completion should any such study be required.

1.5 Project Operation

1.5.1 Personnel

No State of Hawaii or City government or contractor personnel will be assigned to daily duty at the Koko Head Radio Facility. However, as previously discussed, government and contractor personnel will visit the project site to conduct inspections and tests and to perform maintenance service on the air conditioning and power systems and to clean the building and surrounding area.

Contractor personnel from separate companies will service the radio equipment and battery systems at least twice per year with technicians responding intermittently as needed to equipment failures. Technician visits typically would not exceed twenty man-days per year per system (or agency). In total, contractor personnel will make an average of about 10 to 20 trips/month to the Koko Head project site.

1.5.2 Hours of Operation

The radio equipment will operate continuously on a 24 hours per day, 7 days per week basis.

1.6 Preliminary Cost Estimate

The budgeted construction cost, excluding the equipment, for the Anuenue Radio Facility at the Koko Head project site is approximately \$1,800,000 which will be funded by DAGS.

1.7 Project Schedule

Construction is expected to start in fourth quarter of 2004/first quarter of 2005 and should require about 6 months to complete. The facility should be in operation by the end of 2005.

2. DESCRIPTION of EXISTING ENVIRONMENT, IMPACTS and MITIGATION MEASURES

2.1 Geology and Soils

2.1.1 Existing Environment

The project site is located on the south slope of Koko Head. Oahu is assigned seismic Zone 2A, one of five seismic zones, set forth in the 1977 Uniform Building Code (UBC). Zone 2A is the next to lowest seismic zones in the UBC. Originally enacted in 1927, the UBC was developed by the International Code of Building Officials to guide construction of buildings, structures, and facilities throughout the US. The State of Hawaii and the counties in state, including the City and County of Honolulu, have adopted the UBC as the applicable code for constructing buildings, structures, and facilities. The City and County of Honolulu uses the 1997 UBC.

The purpose of the seismic provisions in the UBC is primarily to safeguard against major structural failures and loss of life, not to limit damage or maintain functions. Structures are to be designed and constructed as a minimum to resist the effects of ground motions from seismic events. The site seismic hazard characteristics in the UBC are based on the seismic zone and proximity of the site to active seismic sources.

The Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii prepared by the US Department of Agriculture Soil Conservation Service (now Natural Resources Conservation Service) shows the soil type of the project site to be Rock land, (rRK) described as areas where exposed rock covers 25 to 90 percent of the surface. The rock outcrops and very shallow soils are the main characteristics. The rock outcrops are mainly basalt. The land is nearly level to very steep. The soil material associated with rock outcrops is very sticky and very plastic and has high shrink-swell potential.

2.1.2 Impacts and Mitigation Measures

The Anuenue Radio Facility at the Koko Head project site will be designed and constructed to meet the requirements of the 1997 UBC. This will ensure that the Radio

Facility can meet the seismic loadings established for Zone 2A. This will ensure that the geological conditions at the project site do not adversely affect the building and facilities.

Construction of the equipment building and tower will require subsurface excavation for placement of the foundations and footings for the tower, building, and retaining walls. This will disturb surface and subsurface soils and displace the soils with on-grade slab foundations which will be placed on the surface for the tower and building. However, this disturbance will not adversely affect the soils and geology of the project site and surrounding area.

2.2 Water Resources and Flood Hazard

2.2.1 Existing Environment

The project site is located on the southern slope Koko Head at an elevation of about 612 feet mean sea level (msl). The US Department of the Interior Geological Survey (USGS) topographic map shows that there are no surface water resources on the project site.

The project site is shown Zone D (areas in which the flood hazard are undetermined) in the November 20, 2000 Federal Emergency Management Flood Insurance Rate Map Community Panel Number 15003C0395E. Although the flood hazard has not been determined, based on its elevation, approximately 612 feet msl, and the topographic characteristics of the project site, flooding would not expected to be an issue.

2.2.2 Impacts and Mitigation Measures

There are no surface water sources on the project site. There will be no discharges from the project site directed to waters of the US or waters of the State of Hawaii.

Temporary erosion control measures will be used during construction to prevent runoff to nearby areas, including to adjacent facilities. These mitigation measures will include placement straw or hay bales and erection of a silt fence to prevent surface runoff into adjacent areas. These measures will contain surface flows within the project site during the construction period.

The 8,480 SF project site would be cleared and graded to construct the equipment building and tower foundation. The project site would be sloped to the west to direct surface flow from rainfall away from the equipment building.

The surface flow will be directed to lower elevation areas to the south and west, which are vacant and not developed with facilities.

2.3 Agricultural Lands

2.3.1 Existing Conditions

In 1975, the US Department of Agriculture Soil Conservation Service (now Natural Resources Conservation Service) initiated a nationwide inventory of important farmlands. When completed, the inventory included three categories "prime", "unique", and "other farmlands of state-wide and local importance". This classification was later adopted by the State of Hawaii Department of Agriculture under the title "Agricultural Lands of Importance to the State of Hawaii" (ALISH).

The ALISH system defines "prime agricultural land" as the best suited for food, forage, and timber crops. "Unique agricultural land" is defined as land other than prime, used for the production of high-value food crops. "Other agricultural land" is defined as land used for the production of food, feed, fiber and forage crops, but not classified as "prime" or "unique".

According to the January 1977 ALISH Koko Head area map and designation system, the project site is not classified as "prime, unique or other agricultural land", indicating that the lands are not in the highest classification for productivity and high yield.

2.3.2 Impacts and Mitigation Measures

The project site occupies an area of about 0.195 acres which is currently undeveloped and not used for agricultural production. Removal of this not classified agricultural land would not adversely affect agricultural productivity on Oahu.

2.4 Hazardous Waste

2.4.1 Existing Environment

A visual survey of the undeveloped project site shows no evidence of previous construction of facilities. However, a World War II bunker is located just beyond the southeast border of the project site. The design drawings have identified that this bunker is not to be disturbed by construction of the Anuenue Radio Facility.

2.4.2 Impacts and Mitigation Measures

The Koko Head Radio Facility at the Koko Head project site will contain valve regulated lead acid (VRLA) batteries which will generate a direct current (DC) power source for the microwave repeaters and the land mobile repeaters. The batteries will not require water and will be equipped with flame arresting safety vents. The VRLA batteries are not classified as hazardous materials and will be mounted over a spill containment system. Thus, the VRLA batteries should not adversely affect the environment of the project site and nearby areas.

The emergency generator is expected to use diesel fuel which will be stored in a two-section double-walled, concrete encased above ground tank such as manufactured by Convault. It is expected that at least a 500-gallon total fuel capacity will be required to provide for the desired 7-day supply of fuel. According to the US Environmental Protection Agency (EPA), an above ground double-walled concrete tank will not require a secondary spill containment system around its base.

The fill pipe on the tank will be provided with two or more of the following methods to protect them against overfill. These include: a) direct reading level gauge at the tank which is visible from the fill pipe location; b) valve located within the fill-pipe access to close automatically at a specified fill level; c) audible high level alarm activated by a float switch at a specified fill level. These measures will protect against spills from overfilling when the tank is being filled with fuel.

The City and County of Honolulu Fire Department has allowed use of double walled above ground fuel storage tanks.

The State's equipment room and rectifier room will be equipped with a fire suppression system suitable for use in rooms with electronic equipment. The fire suppression system will use a compound of carbon, fluorine, and hydrogen as the suppressant which is non-ozone depleting and safe for use in occupied spaces. The City and County of Honolulu fire protection will be needed at the project site to safely enter the building in the event of a fire and discharge of the fire suppression system.

The existing City and County of Honolulu facility contains an above ground propane tank which will be retained. New lines will connect this tank to the emergency generator located in the equipment building. This will not be a change in the existing use of land.

2.5 Recreation Resources

2.5.1 Existing Environment

The Koko Head Radio Facility project site is located on Koko Head which lies within the Hanauma Bay Nature Preserve, a portion of Koko Head Regional Park. Major park improvements to Hanauma Bay were first made in 1950, when the City constructed a beach access road, lookout area, and cliff trail to accommodate the increasing number of park visitors to the park. In 1967, the State of Hawaii Department of Land and Natural Resources designated 101 acres of the bay's underwater basin as a Marine Life Conservation District and established Hanauma Bay Underwater State Park.

In the early 1980's, overuse of the park and bay became an increasing concern to the City such that new regulations were established to control use of the park and to protect the resources in the bay. Other use limits have been established to close the park once a week for maintenance and to strictly enforce controls on vehicle parking, commercial vehicle and commercial tour access.

In August 1999, major improvements to Hanauma Bay Nature Preserve were included in a project by the City titled Improvements to Hanauma Bay Nature Preserve. These improvements included construction of a center to increase public education and awareness of the value and fragility of the resources in the bay, construction of a new lifeguard safety equipment facility, repaving the beach access road, and replacement of the beach tram turn-around.

2.5.2 Impacts and Mitigation Measures

The Anuenue Radio Facility at the Koko Head project site is located at elevation 612 feet msl and about 0.9 miles from the entrance to the Hanauma Bay Nature Preserve. The City and County of Honolulu Department of Parks & Recreation controls the access road to the Anuenue Radio Facility at the Koko Head project site. There is no unrestricted public or visitor access to the Anuenue Radio Facility project site.

The Department of Parks & Recreation allows a total of 24 fishing clubs to use the improved access road which branches off to an unimproved road leading to the shoreline west and below the project site. The unimproved road is located about 0.2 miles north of the project site. The security fencing plan for the Anuenue Radio Facility at the Koko Head project site will not restrict use of the improved access road. Thus, there should be no adverse impacts to the fishing clubs' use of the fishing areas on Koko Head.

In addition, the project site will be located on the south slope of Koko Head at an elevation of about 612 feet msl and over about 1,000 feet away from the closest shoreline. The Anuenue Radio Facility at the Koko Head project site will not be located near the shoreline and should not obstruct fishermen's views either toward the offshore or from the offshore.

Although vehicle access to Koko Head is controlled, pedestrian access is allowed without restriction. The access road is used by joggers and walkers to reach Koko Head. The access road and adjacent locations provide views of Hanauma Bay and off-shore areas. As previously stated, the security fencing plan for the project site will not restrict use of the access road. Thus, there should be no adverse impacts to the joggers and hikers use of Koko Head.

No State of Hawaii or City government or contractor personnel will be assigned to daily duty at the Anuenue Radio Facility at the Koko Head project site. However, as previously discussed, government and contractor personnel will visit the project site to conduct inspections and tests on the radio equipment, to perform maintenance service on the air conditioning and power systems, and to clean the building and surrounding

area. In total, contractor personnel will make an average of about 10 to 20 trips/month to the Anuenue Radio Facility at the Koko Head project site.

A locked gate is located near the intersection of the access road to the Koko Head project site and the Hanauma Bay Nature Preserve access road. However, there is sufficient space to stage several vehicles near the gate so there is no conflict with visitors to Nature Preserve. In addition, the low level of contractor activity should not adversely affect recreation uses of Hanauma Bay Nature Preserve.

2.6 Biological Resources

2.6.1 Existing Environment

Flora

In March 2004, a botanical survey was conducted to determine the vegetation on the Anuenue Radio Facility at the Koko Head project site. The survey indicates the project site is located in an area subject to almost constant wind leaving large areas bare of both top soil and plants. As a result to the exposure to wind, the vegetation consists of low growing or wind sheared herbs and trees. The only Opiuma tree found on the project site is less than 5 feet tall. However, the trunk of this tree is considerably longer having been subject to the constant wind. The low growing grasses and weedy herbs dominate the vegetation and include Buffelgrass, Guinea grass, and bristly foxtail grass. No listed or candidate threatened or endangered botanical species as set forth by the US Department of the Interior Fish and Wildlife Service (USFWS) were found on the project site. See Appendix B.

Fauna

Koko Head area was included in a field survey conducted as part of the Improvements Hanauma Bay Nature Preserve Environmental Impact Statement (EIS). As set forth in the EIS, the purpose of the field survey was to document the species present in area and their relative density.

According the May 1988 survey documented in the EIS, no endemic land birds were recorded during the course the field survey. No endemic lands are known to occur on Koko Head nor would any be expected given the nature of the habitat.

Migratory species, such as the Pacific Golden Plover and Wandering Tattler, were observed during the survey. The Ruddy Turnstone and Sanderling were not observed, although they have been recorded on the eastern coastline of Oahu.

No resident indigenous land birds were observed during the 1988 survey.

Resident indigenous seabirds were observed during the survey. In addition, it is possible that Wedge-tailed Shearwaters and Bulwers Petrel could be nesting on the inaccessible seaward facing cliffs of Koko Head. Typically, these two species nest in burrows and under ledges of cliff faces. None of the seabirds seen in the area are listed or candidate threatened or endangered species as set forth by the US Department of the Interior Fish and Wildlife Service (USFWS).

Small Indian Mongoose and cats were the only observed mammals in the 1988 survey.

In addition, biological observations conducted in conjunction with the botanical survey found Common Mynas, Red-Whiskered Bulbul, Zebra Doves, and House Sparrows on the project site.

2.6.2 Impacts and Mitigation Measures

Flora

Construction of the Anuenue Radio Facility at the Koko Head project site will require removal of the surface vegetation from the project site and grading it to for construction of the tower foundation and building. Once graded and prepared, the foundation and footings for building and tower will be constructed. Removal of the surface vegetation will not create an adverse impact to the flora of this area of the island of Oahu.

The project site contains no listed or candidate threatened or endangered botanical species as set forth by the USFWS. Thus, construction of the Anuenue Radio Facility at

the Koko Head project site will not have an adverse impact to threatened or endangered species.

Fauna

The low growing grasses and weedy herbs on the Anuenue Radio Facility at the Koko Head project site does not include habitat normally used by birds. Thus, the project site would not serve as a feeding and foraging habitat to attract birds. Thus, loss of these low growing grasses and weedy herbs would not adversely affect the bird population in the area of the project site or any USFWS listed or candidate threatened or endangered species.

As with any above ground structure, bird strikes are possible with the 70-foot high Anuenue Radio Facility tower and attached antennas. However, there are a number of factors which indicate the likelihood such birds strikes with the tower and antennas should not occur. First, the existing City and County of Honolulu facility with its four towers has been in operation for a number of years and other towers are located nearby. In addition, the Anuenue tower will be self-supporting and will use no hard-to-see guys. It is expected that the Anuenue tower will not require lighting that might attract and/or disorient birds in flight at night or during periods of low visibility. It should also be noted that most birds have excellent eyesight and most structures typically do not present a hazard to birds in the area. Overall, the potential for bird strikes with the Anuenue tower and antennas should be low and not present a threat to the birds in the area.

2.7 Traffic

2.7.1 Existing Environment

The project site is located about 11 miles east of downtown Honolulu and 0.9 miles (4,500 feet) south of Kalaniana'ole Highway, State Route 72, the major primary public access roadway serving the eastern area of Oahu. Kalaniana'ole Highway near the project site is a two-lane road, one lane in each direction, under the control of the State of Hawaii Department of Transportation (DOT).

The most recent detail traffic study was conducted in December 1998 and supplemented in July 1999 in relation to the City and County Honolulu proposed Improvements to Hanauma Bay Nature Preserve, as documented in the Final EIS. The traffic study examined the Kalanianaʻole Highway and Hanauma Bay Road intersection along with other nearby locations.

The July 1999 traffic study showed that the proposed improvements to Hanauma Bay Nature Preserve (snack bar relocation, awareness training, and shuttle bus modifications) would not result in the need for any roadway improvements to the Kalanianaʻole Highway and Hanauma Bay Road intersection or in the surrounding community.

2.7.2 Impacts and Mitigation Measures

Traffic impacts related to construction activities will occur while equipment and materials are moved to the project site. However, this traffic will be short-term occurring during the 6-month construction period. This should not create an adverse affect to traffic on Kalanianaʻole Highway.

No State of Hawaii or City and County of Honolulu government personnel will be assigned on a daily basis to the Koko Head Radio Facility. Contract personnel will visit the project site to conduct tests on the radio equipment and to perform maintenance service on the emergency generator and on other building systems. A total of an average of about 10 to 20 trips per month will occur to conduct the necessary tests and perform maintenance on the equipment at the Koko Head Radio Facility. This level of activity will not create an adverse affect to traffic on Kalanianaʻole Highway or the or on the access road. Based on the Pre-Assessment consultation, on February 19, 2004, the DOT concurred that the Anuenue Radio Facility at the Koko Head project site will not impact the State highway facilities. See Appendix A.

2.8 Air Quality

2.8.1 Existing Environment

The project site is located on the Koko Head, an area set aside as a nature preserve. However, residential, primarily single family units, institutional, and commercial development are present below and to the west of the project site. The Hanauma Bay Nature Preserve Underwater State Park is located east of the project site. The air quality of the vicinity would primarily be affected by vehicle traffic to the developed areas.

Standby emergency generators have been installed at the City and County of Honolulu facility, and at the other nearby communication facilities. These generators would be operated during testing and outages of commercial power.

2.8.2 Impacts and Mitigation Measures

Potential short-term adverse air-quality impacts during the construction phase include: 1) generation of fugitive dust from vehicle movements and soil excavation; and 2) exhaust emissions from on-site construction equipment and from construction workers' vehicles traveling to and from the project site. These adverse impacts will be short-term during the period of construction.

Construction activities must comply with provisions of Chapter 11-60.1, Hawaii Administrative Rules (DOH), "Air Pollution Control" and, with respect to fugitive dust, Section 11-60.1-33. In addition, the entire project site is approximately 0.195 acres (8,480 square feet) which will mean a relatively small area of disturbance. The DAGS Contract Specifications Section 01577 include a standard Environmental Controls section with specific reference to Chapter 11-60. Under air pollution control, the Environmental Controls specifications include the provision that the contractor must maintain the areas within and without the project limits free from dust which would cause hazards to the work and to other persons or property. The specifications also state the contractor will be permitted to use accepted methods for dust control such as enclosures and filtering. It is expected that the contractor will comply with State regulations and provide adequate means to control dust during the various phases of construction.

Once construction has been completed, operation of the Anuenue Radio Facility at the Koko Head project site will involve visits by contractor personnel who will visit the project site to perform periodic maintenance and testing of equipment and systems. This level of activity will not generate sufficient traffic to adversely affect air quality in the area.

The 40 KW standby emergency generator will be tested once or twice per month to ensure proper operation in the event of an outage of the HECO system. The testing will involve starting the generator, testing the switching systems, and placing the system under load conditions to ensure proper operation. This testing should require operation of the generator for about 3 to 4 hours per month, or less than 50 hours per year. This level of testing of the emergency generator should not create adverse impacts to the air quality in the area.

2.9 Noise

2.9.1 Existing Environment

The project site is located about 4,500 feet (about 0.9 miles) south of Kalanianaʻole Highway within Hanauma Bay Nature Preserve. Residential units are located about 1,200 feet west of the project site at elevations of about 160 feet mean sea level, or approximately 460 feet below the project site.

Vehicle traffic on Kalanianaʻole Highway would be the primary source of noise near the project site. However, Kalanianaʻole Highway lies about 4,500 feet to the north which means a very low level of noise at the project site.

2.9.2 Impacts and Mitigation Measures

Construction activities such as grading, excavating for footings and foundations, and erecting the building and tower will create noise. The equipment used for these activities typically include pick ups trucks, excavators, graders, rollers, backhoes, concrete delivery trucks, water tank trucks, hydraulic cranes, and forklifts. Noise generated by this will be short-term during the period of construction. Once construction has been completed, the noise impact will no longer occur.

Once construction has been completed, noise will be generated by vehicles used by contractor personnel and others visiting the Anuenue Radio Facility at the Koko Head project site for testing and other purposes. An average total of about 10 to 20 trips per month will be made to the project site. This level of traffic should not create an adverse affect to the noise environment in the area of the project site.

The City and County of Honolulu zoning designation is P-1, Restricted Preservation, for the Anuenue Radio Facility at the Koko Head project site. Title 11 Hawaii Administrative Rules State of Hawaii Department of Health Chapter 46, Community Noise Control (September 23, 1996) identifies maximum permissible sound levels for classes of zoning districts classes using the zoning established by the counties. According to Chapter 46, the maximum permissible sound level at any point at or beyond the property line is 55 dBA for zoning district Class A, areas equivalent to lands zoned residential, conservation, preservation, or similar type. The maximum permissible sound level shall apply in a manner deemed appropriate by Director of the Department of Health.

The emergency generator will be placed within the generator room as part of the equipment building. The generator and generator room will be designed to suppress noise from the generator during emergency operations and testing. The generator intake shroud is designed to suppress noise and the room will have insulation placed along the walls. The residential areas lie about 1,200 feet west and approximately 460 feet below the project site. Noise levels from maintenance operation of the emergency generator should not create an adverse affect these residential units. It should also be noted that Title 11 Chapter 46 regulations do not apply to "operation of emergency generators when installed and used as required and necessary for the protection of public health and safety, provided the best available control technology is implemented."

2.10 Archaeological and Cultural Resources

2.10.1 Existing Environment

In November 1998, an archaeological inventory survey (Archaeological Inventory of Eight Areas Within Koko Head Regional Park) was conducted in conjunction with the planning for the City and County of Honolulu Koko Head Regional Park. This survey identified a series of reinforced underground bunkers on Koko Head. One of these underground bunkers is located adjacent to the east wall of the equipment building and

just below or south of the tower foundation. (This bunker will remain in-place.) In addition, the City and County of Honolulu has constructed a three leg 20-foot high tower on the roof of one the bunkers.

The series of bunkers is considered significant site due to its association with major events related to Hawaii's role in US military history and for its information on the historic use of the area as well as research and interpretive potential. Based on the results of the survey, the State of Hawaii Department of Land and Natural Resources Historic Preservation Division (SHPD) concurred with the recommendation set forth in 1988 to preserve the site.

2.10.2 Impacts and Mitigation Measures

The Koko Head Radio Facility will require construction of a four leg self supported tower, an equipment building, retaining walls, and supporting facilities. Construction of these facilities will require subsurface excavation for footings and foundations. The project site plan preserves the underground bunker west of the equipment building and the security fence will enclose the bunker. In addition, the three leg tower will be removed from the roof of the bunker located within the City's facility.

Based on these factors and the findings from the November 1988 archaeological inventory survey, on February 24, 2004, as part of the Pre-Assessment consultation, the SHPD has made a determination that "no historic properties will be affected" by construction of the Anuenue Radio Facility at the Koko Head project site. See Appendix A.

2.11 Cultural Impact Assessment

2.11.1 Existing Environment

House Bill No. 2895 H.D.1 was approved by the Governor on April 26, 2000 as Act 50 which amended Chapter 343 Hawaii Revised Statutes to require a cultural impact assessment be included in the preparation of an Environmental Assessment.

A Cultural Impact Assessment/Study (CIA) was undertaken to gather information about traditional cultural practices, ethnic cultural practices, and pre-historic and historic cultural remains that might be affected by the Anuenue Radio Facility at the Koko Head project site. Appendix C contains a summary of the Cultural Impact Assessment. The complete CIA report will be filed with the SHPD and the Office of Environmental Quality Control (OEQC).

The following summary presents information from the Cultural Impact Assessment.

The archival data supported by the pedestrian and ethnographic surveys suggest that the project area has a long and broad history regarding cultural, land and water resources and use that span many centuries. The traditional oral histories indicate that this area was part of the O'ahu *ali'i* history dating back to well before the 1300s. Late nineteenth century ethnographic works state that this area was utilized since before the time of the Pele legends up to the time of the western traders and voyagers. It continues to be utilized to the present time, but by non-cultural entities.

2.11.2 Impacts and Mitigation Measures

The CIS found that since the lands within the project area were heavily impacted by the activities of the 19th and 20th centuries [telegraph, World War I and II, and communication towers and facilities]; any cultural sites were either destroyed or buried by these activities. There does not appear to be any traditional Hawaiian sites that would be impacted by construction at the project site.

2.12 Infrastructure

2.12.1 Water

Existing Conditions

The project site is not served by the City and County of Honolulu Board of Water Supply (BWS) potable water system. The Anuenue Radio Facility at the Koko Head project site will not require potable water services for domestic uses or for fire protection.

Impacts and Mitigation Measures

The Koko Head Radio Facility will not create a need for potable water on the project site. Thus, the Anuenue Radio Facility at the Koko Head project site will not have an adverse affect to the BWS's water system, including sources of water.

Fire protection for the building will include a fire suppression system and hand-held fire extinguishers.

2.12.2 Sewer

Existing Conditions

The equipment building will not have toilet facilities. Thus, the Anuenue Radio Facility will not require wastewater services from the City and County of Honolulu or use an on-site system for treatment or disposal.

Impacts and Mitigation Measures

The Anuenue Radio Facility at the Koko Head project site will not have an adverse affect to the City's wastewater system nor create adverse affects from the on-site disposal of wastewater or which might adversely affect groundwater resources.

2.12.3 Electrical

Existing Conditions

Electrical Service

Existing overhead power lines extending from Lumaha'i Place up the slope of Koko Head supply three-phase power to a 12.47/2.4kV step down transformer mounted on an above ground utility pole located about 500 feet north of the project site. Three-phase power is supplied to the FAA VORTAC facility via a pole mounted 2.4kV meter. Overhead and underground 2.4kV lines extend towards the project site, with several 2.4kV to 120/240V pad mounted and pole mounted step down transformers supplying

single phase power to the existing communication facilities operated by the City and County of Honolulu, Oceanic Time Warner Cable, Verizon Hawaii and Nextel. Each of these facilities is separately metered.

Communication Service

Existing communication lines are routed from Lumaha'i Place to the site on utility poles and extend overhead and underground to the various existing facilities on Koko Head. Existing cable lines, including fiber optic lines, are also routed overhead and underground.

Impacts and Mitigation Measures

Electrical Service

The above ground utility poles which service the facilities near the project site, excluding the poles serving the FAA facility, will be removed and all overhead connections relocated underground, including those to the existing Oceanic Time Warner Cable, Verizon Hawaii and Nextel facilities. A new three-phase 2.4kV service will be provided for the Anuenue Radio Facility at the Koko Head project site. New 2.4kV to 120/240V single phase pad mounted transformers will be installed to replace pole mounted transformers. New electrical services will be provided to the Anuenue Radio Facility via a new HECO pad mounted transformer installed near the equipment building, with separately meters for the State and City facilities. The transformer can be fed from a new handhole along the new ductlines.

Two new 200-amp, 208Y/120-volt, three-phase, 4-wire electrical underground services will be provided from the transformer to two new meters on the equipment building. Electrical load requirements for the new facility are to be 40 kilowatts for each side of the shared building. The electrical services will feed rectifiers and battery systems which will provide DC power to the equipment.

Emergency Power Service

A new 40KW diesel generator and automatic transfer switch will provide for full backup capacity to the State side facility should normal utility power from HECO fail. The diesel generator will be housed in a separate room within the new building. A new exterior 500-gallon Convault-type above ground fuel tank will support the diesel generator.

Communication Service

New telephone lines can be extended in 4-inch underground conduit to the new building from a new handhole along the new ductlines. Existing overhead communication lines to existing facilities will be relocated underground.

2.13 Visual Considerations

2.13.1 Existing Conditions

The Anuenue Radio Facility at the Koko Head project site is located within Hanauma Bay Nature Preserve. Public views of the summit of Koko Head are visible from along the southern shoreline of Oahu, including intermittent stretches of eastbound Kalanianaʻole Highway and from Maunalua Bay Beach Park. At locations closer to the base of Koko Head, including near Koko Head Elementary School and the surrounding residential areas, the intervening terrain obscures views of the summit of area, except for several of the above ground utility poles.

Currently, there are a total of 13 above ground objects near the project site which can be seen on Koko Head from various locations, including intermittent stretches of eastbound Kalanianaʻole Highway, from Maunalua Bay Beach Park, and at the western end of upper parking lot at Hanauma Bay Nature Preserve, which is about 5,500 feet or over 1 mile from the project site. The above ground objects include the four City and County of Honolulu towers two, three leg self supported towers, one about 50 feet tall and the other about 20 feet tall, and two monopoles one about 50 feet tall and the other about 30 feet tall. In addition, there are seven active above ground utility poles that provide power to the FAA facility, other facilities north of the project site, the City's

facility and two other nearby communication facilities, and two abandoned above ground utility poles near the project site. The 13 above ground objects result in a cluttered view of Koko Head.

2.13.2 Impacts and Mitigation Measures

The Anuenue Radio Facility at the Koko Head project site will be located on the slopes to the southwest of top of Koko Head and will be located about 4,500 feet (or approximately 0.9 miles) south of Kalanianaʻole Highway within Hanauma Bay Nature Preserve. The project site will be about 17 feet lower than the existing City facility and, due to its placement, the building will be about 4 to 5 feet lower than the surrounding grade. This means only about 8 feet of the building will protrude above the surrounding grade.

The City and County of Honolulu will remove the four above ground towers and the building from their existing site, once construction of the new facility has been completed and the functions relocated. In addition to the removal of the four towers by the City, the State will remove five of the seven active utility poles and construct an underground system to route the power to the new facility and the other nearby facilities. The two abandoned utility poles will also be removed. Thus, once the Anuenue Radio Facility is completed, there will be only one visible tower and two utility poles, or a net decrease of 10 visible above ground objects on Koko Head. This should not be an adverse impact to views of Koko Head when seen from afar.

It is not anticipated that the tower will require lighting which might detract from views during the night or might attract seabirds. In addition, it is not anticipated that tower will require marking for aviation safety. The US Department of Transportation Federal Aviation Administration (FAA) will make the final determination for the requirement for lighting the tower. However, it should be noted that, for other Anuenue radio facility projects, the FAA has determined that the tower did not exceed obstruction standards and marking and lighting would not be necessary for aviation safety.

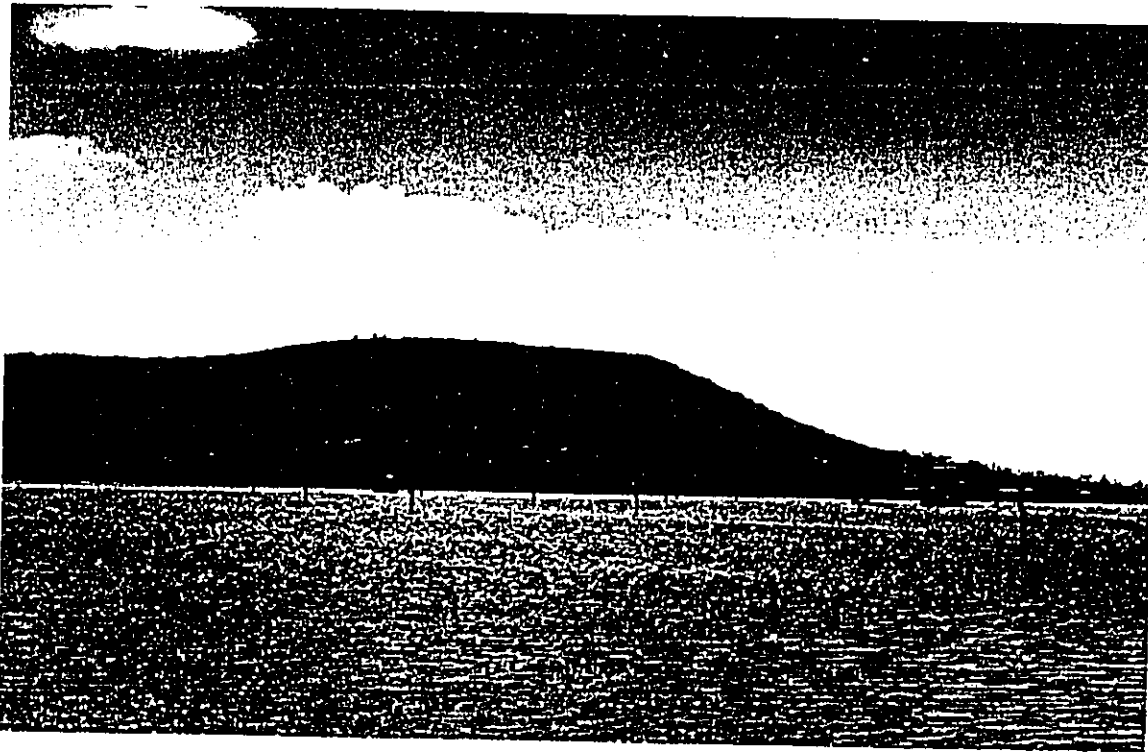
The visual impact of the Anuenue tower and antennas will be mitigated since the tower will initially be left unpainted which will be a light gray shade due to galvanized finish.

Eventually the tower will be painted a light gray shade similar to the color of the galvanized finish. At a distance, these colors will not contrast sharply with the other adjacent towers and facilities on Koko Head and the surrounding background.

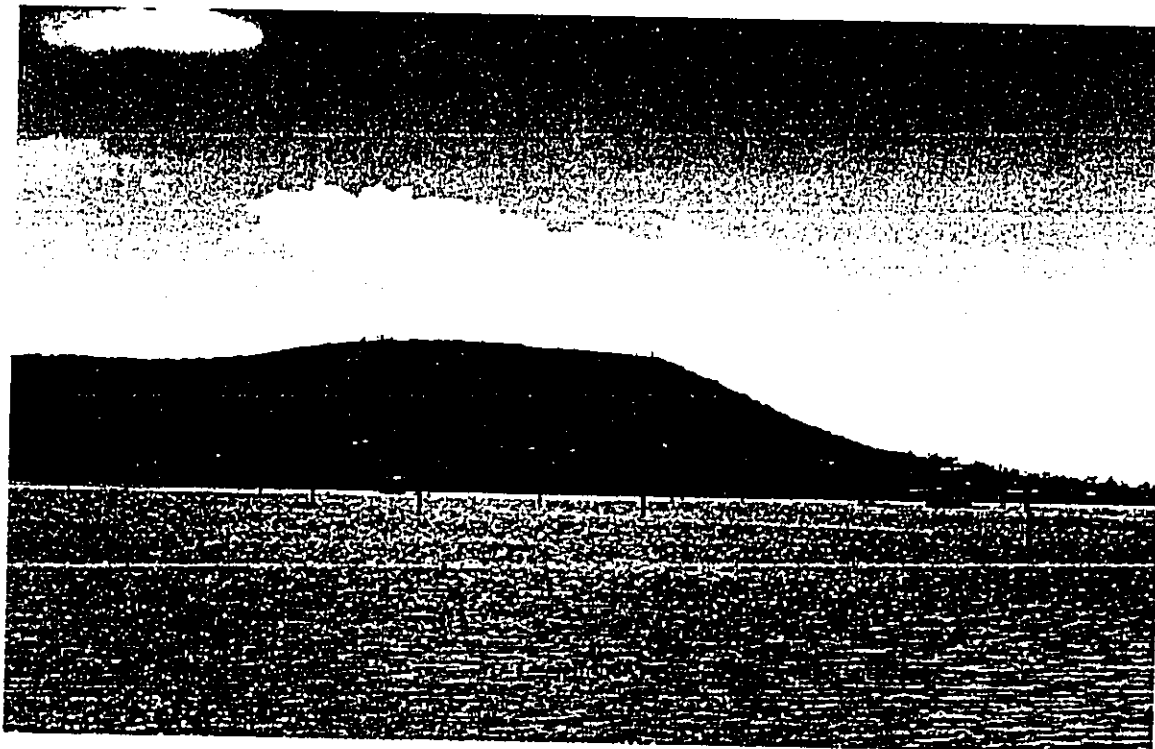
A photograph was taken of the project site to show existing conditions from Maunalua Bay Beach Park about 8,500 feet (1.6 miles) directly northwest of the Koko Head Radio Facility project site. The photograph was taken from the Beach Park parking lot and shows the existing above ground utility poles and the City and County of Honolulu towers. The project site is approximately 600 feet above the elevation of the Beach Park. Note, the photograph was taken with a 50mm camera lens to approximate the view which would be seen by a person standing at the Beach Park. Figure 2.1 shows the project site from Maunalua Bay Beach Park.

Based on the known height of the City's tower, and the known height of the Anuenue tower (about 70 feet tall) and removal of the 7 above ground poles (5 active and 2 abandoned) and the four City towers, it was possible to approximate the view of the project site with the Anuenue tower and antennas as viewed from Maunalua Bay Beach Park. This analysis shows that the Anuenue tower would be visible as a small feature on the lower slope of Koko Head. The analysis also showed that removal of the above ground utility poles and City towers would remove a total of 11 above ground objects from the view and result in a single tower and two poles on Koko Head. The removal of 11 above ground objects and construction of one tower should not create a significant adverse impact to public views from Maunalua Bay Beach Park. See Figure 2.1.

At locations closer to the base of Koko Head, including near Koko Head Elementary School and the surrounding residential areas, the intervening terrain obscures views of the summit of area, including near the Anuenue Radio Radio Facility at the Koko Head project site. Thus, the addition of the tower and removal of the of the above ground utility poles should not be an adverse impact to public views form these areas.



Without Tower



With Proposed Tower



Wilson Okamoto
CORPORATION

ANUENUE (FORMERLY RAINBOW) RADIO TOWERS AND FACILITIES - KOKO HEAD SITE

Project Site Photographs

Figure No.

2.1

2.14 Biological Exposure

2.14.1 Existing Electromagnetic Radiation Environment

Radio frequency (RF) radiation is part of the electromagnetic radiation (EMR) spectrum that applies to frequencies between 3 kilohertz (kHz) and 300 gigahertz (Ghz). A variety of commercial communications and data systems are made possible by transmitting information via electromagnetic waves. For example, most amplitude modulated (AM) radio stations transmit signals in the frequency range of 550 kHz to 1,600 kHz, while frequency modulated (FM) radio stations transmit signals in the frequency range of 88 MHz to 108MHz.

The Federal Communications Commission (FCC) has established maximum permissible exposure (MPE) limits to electromagnetic radiation. A summary of the FCC's "Local Official's Guide to RF" explains:

The FCC's guidelines establish separate MPE limits for "general population/uncontrolled exposure" and for "occupational/controlled exposure." The general population/uncontrolled limits set the maximum exposure to which most people may be subjected. People in this group include the general public not associated with the installation and maintenance of the transmitting equipment. Higher exposure limits are permitted under the "occupational/controlled exposure" category, but only for persons who are exposed as a consequence of their employment (e.g., wireless radio engineers, technicians). To qualify for the occupational/controlled exposure category, exposed persons must be made fully aware of the potential for exposure (e.g., through training), and they must be able to exercise control over their exposure. In addition, people passing through a location, who are made aware of the potential for exposure, may be exposed under the occupational/controlled criteria. The MPE limits adopted by the FCC for occupational/controlled and general population/uncontrolled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

The FCC limits for EMR are discussed in detail on the FCC website at <http://www.fcc.gov/oet/rfsafety/>.

Based on the FCC guidelines, any area located outside of a radio facility fence is defined as a "general population/uncontrolled exposure" area. Almost all people live and work in an "uncontrolled" environment filled with radio energy from sources as diverse as broadcast stations (AM, FM, and TV), cellular telephone transmitter sites and handheld cellular telephones, and mobile radios (LMRs), wireless computer networks, and natural radio energy sources such as thunderstorms. However, this "uncontrolled" environment is safe because the signal energies are usually well below the MPE limits. Although the Anuenue Radio Facility at the Koko Head project site will be considered an "occupational/controlled exposure" environment, the expected EMR levels both on the ground inside the fenced compound and inside the equipment building will be below the MPE limits for a "general population/uncontrolled exposure" environment. Personnel servicing and testing equipment within the building should not be exposed to an EMR hazard. However, tower maintenance personnel can be exposed to potentially unsafe levels of EMR if proper access and work procedures are not followed.

2.14.2 Impacts and Mitigation Measures

EMR consists of time varying electromagnetic fields that have the characteristic of motion or propagation. Unfortunately, radio frequency EMR is often confused with ionizing radiation which has known biological hazards ascribed to X-rays, gamma rays, and particle beam energies. Even moderate levels of ionizing radiation are dangerous as they have sufficient quantum energy to expel an electron from a molecule. This expulsion leaves the molecule positively charged and thereby affecting its interactions with neighboring molecules. In biological systems this ionization can alter the molecule functions fundamentally and often irreversibly.

The energies from nonionizing radiation, such as radio frequency EMR, are much lower such that, even at very high signal intensities, their primary effect is to agitate or vibrate the molecular structure rather than to ionize them. The effect of this agitation is to produce heat. In humans, the heat produced by such exposure is undetectable above the heat produced by the normal metabolic rate. Even at intentional exposure, the

thermoregulatory capabilities of mammals and birds can adequately accommodate dissipation of the added heat load.

In a rigorous study completed for a DAGS facility with a similar mix of emitters, the distances required to keep personnel safe from EMR hazards were less than 20 feet for all emitter types and the only hazardous area associated with the microwave emitters occurred immediately in front of those antennas. The lowest microwave dish antenna will be mounted with its centerline at 14 feet above ground level and its bottom rim at 9 feet above ground level. Thus, the Koko Head Radio Facility will not produce an EMR hazard to people or animals beyond the fence line.

3. RELATIONSHIP to PLANS, POLICIES and CONTROLS

3.1 Hawaii State Plan

The Hawaii State Plan, adopted in 1978 and revised in 1988, establishes the overall theme, goals, objectives, and priority guidelines to guide the future long-range development of the State. The Anuenue Radio Facility at the Koko Head project site supports and is consistent with the following State Plan objectives and policies:

Section 226-6 Objectives and policies for the economy - in general.

(b) (6) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.

The Anuenue Radio Facility at the Koko Head project site will involve construction of new facilities at a new site. The Anuenue Radio Facility will increase the level of construction activity on Oahu during the period of construction which will enhance the state's growth objectives.

Section 226-10.5 Objectives and policies for the economy – information industry

(b) (1) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawaii to accommodate future growth in the information industry.

The Anuenue Radio Facility at the Koko Head project site will enhance the voice communication and data transmission capabilities of public agencies to provide information to all areas of the public sector. The facility has been planned to accommodate the future needs to the public agencies using the Anuenue Radio Facility.

Section 226-11 Objectives and policies for the physical environment - land-based, shoreline, and marine resources.

(b) (3) Take into account the physical attributes of areas when planning and designing activities and facilities.

The Anuenue Radio Facility at the Koko Head project site is located adjacent to two existing similar facilities used by the NEXTEL and Oceanic Time Warner. (The existing City and County of Honolulu facilities will be removed, once construction of the Anuenue Radio Facility is completed.) The Anuenue Radio Facility project site has been designed to account for the existing facilities and the topographic conditions on the project site to minimize excavation or grading. About 4 to 5-feet of the eastern wall will be below the grade of the slope.

Section 226-14 Objectives and policies for facility systems – general.

(b) (1) Accommodate the needs of Hawaii's people through the coordination of facility systems and capital improvement priorities in consonance with the state and county plans.

The Anuenue Radio Facility at the Koko Head project site has been planned to be jointly used by Federal, State and City and County public agencies to provide vital transmission of voice and data communications. The Anuenue Radio Facility at the Koko Head project site will be a single facility which can accommodate the needs of various public agencies.

3.2 Land Use Plans and Policies

3.2.1 State Land Use District

The Hawaii Land Use Law of Chapter 205, Hawaii Revised Statutes, classifies all land in the State into four land use districts: Urban, Agriculture, Conservation, and Rural. The Anuenue Radio Facility Koko Head project site is located in the Conservation District, General, Limited and Protective subzones.

Hawaii Administrative Rules Title 13 Department of Land and Natural Resources Subtitle 1, Administration, Chapter 5, Conservation District, Subchapter 3, Identified Land Use and Required Permits (Section 13-5-22) sets forth identified lands uses in the Protective subzone and their required permits.

The Anuenue Radio Facility at the Koko Head project site is an identified land use under Section 13-5-22, P-6 Public Purpose Uses, "land uses undertaken by the State of Hawaii or counties to fulfill a mandated governmental function, activities, or services for public benefit and in accordance with public policy and the purpose of the Conservation District. Such land uses may include transportation systems, water systems, communication systems, and recreational facilities."

The Anuenue Radio Facility at the Koko Head project site is a public communication facility to be used by public agencies for public purposes. A board permit will be required from the State of Hawaii Board of Land and Natural Resources.

3.2.2 City and County of Honolulu General Plan

The City and County of Honolulu General Plan is "a comprehensive statement of objectives and policies which sets forth the long-range aspirations of Oahu's residents and the strategies of actions to achieve them. It is a focal point of a comprehensive planning process that addresses physical, social, economic, and environmental concerns affecting the City and County of Honolulu." The revised 1992 edition of the General Plan is the current document used by the City.

The General Plan is a guide for all levels of government, private enterprise, neighborhood and citizen groups, organizations, and individual citizens in 11 areas of concern. The General Plan objectives and policies applicable to the Koko Head Radio Facility are set forth below.

Area of Concern: Transportation and Utilities

Objective C

To maintain a high level of services for all utilities

Policy 3

Plan for the timely and orderly expansion of utility systems

Objective D

To maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit.

Policy 5

Require the installation of underground utility lines wherever feasible.

The Anuenue Radio Facility at the Koko Head project site will install a modern high capacity digital interconnect to replace the Rainbow analog radio channels used by the various agencies, including the City and County of Honolulu Police Department and Fire Department. The backbone of the new digital system will have the capability to transmit 155 Mbit/s (megabits per second) which is equivalent to 2016 traditional voice channels or about 17 times the capacity of the Rainbow analog system. The conversion to a digital system is needed to handle the expanding voice and data communications requirements of the public safety community. The conversion to high capacity digital microwave was also forced both by the Federally-mandated reassignment of analog microwave frequencies to personal communications systems (cellular telephones) and public safety agencies' growing need for communications services to properly serve the public in the coming years. The Anuenue Radio Facility project will also remove above ground utility poles and construct underground service. Thus, Anuenue Radio Facility at the Koko Head project site will be consistent with the Transportation Utilities objectives and policies of the City's General Plan.

Area of Concern: Public Safety

Objective B

To protect the people of Oahu and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.

Policy 5

Cooperate with State and Federal agencies to provide protection from war, civil disruptions, and other major disturbances.

Policy 8

Provide adequate search and rescue and disaster response services.

The Anuenue Radio Facility at the Koko Head project site will upgrade and improve the digital voice, video, and data communications capabilities of the public user agencies including the City and County of Honolulu Police Department and Fire Department. The Anuenue Radio Facility project will be consistent with the Public Safety objectives and policies of the City's General Plan.

Area of Concern: Government Operations and Fiscal Management

Objective A

To promote increased efficiency, effectiveness, and responsiveness in the provision of government services by the City and County of Honolulu.

Policy 2

Promote consolidation of State and City and County functions whenever more efficient and effective delivery of government programs and services can be provided.

The Anuenue Radio Facility at the Koko Head project site will be used by Federal, State of Hawaii, and City and County of Honolulu agencies for voice communications and data transmission purposes. The equipment building and tower will be designed to accommodate State and City functions within the single facility which will result in efficiencies in development and cost savings in construction, especially since the existing City facility needs repairs and should be upgraded to more efficient operations and equipment. The Anuenue Radio Facility will be a public facility used by public agencies for public purposes. Thus, the Anuenue Radio Facility at the Koko Head project site will be consistent with the Government Operations and Fiscal Management objectives and policies of the City's General Plan.

3.2.3 East Honolulu Sustainable Communities Plan

On May 28, 1999, the City and County of Honolulu adopted the East Honolulu Development Plan (Ordinance 99-19) to serve as the policy guide for East Honolulu's future development consisting of policies, guidelines, and conceptual schemes that will serve as policy guide for more detailed zoning maps. The Development Plan is

documented in the East Honolulu Sustainable Communities Plan, which is one of the eight geographic planning regions on Oahu.

Two of the eight planning regions, Ewa and the Primary Urban Center, are the areas to which major growth in population and economic growth will be directed over the next 20 years and beyond. The other six planning regions, including East Honolulu, are envisioned to remain relatively stable. Thus, plans for these regions have been titled "Sustainable Communities Plans" which includes policy guides for public actions to support that goal. The vision statement and supporting provisions of the East Honolulu Sustainable Community Plan are oriented toward maintaining and enhancing the region's ability to sustain its unique character and lifestyle.

Seven key elements of the vision are set forth in the Sustainable Community Plan. The applicable element that applies to the Koko Head Radio Facility is discussed below.

- Preserve scenic views of ridges, upper valley slopes, shoreline areas from Kalanianaʻole Highway and from popular hiking trails that extend from Koko Head to Makapuu Head.

In addition, the Sustainable Community Plan sets forth policies, planning principles, and guidelines for the preservation of historic and cultural resources. The general policy is to preserve significant historic features from earlier periods. The planning principle is to recommend in situ preservation and appropriate protection measures for sites that have high preservation value because of their good condition or unique features. The related guideline is to require preservation in situ only for those features which the State Historic Preservation Officer has recommended such treatment.

As part of the construction of the Anuenue Radio Facility at the Koko Head project site, the above ground utility poles will be removed and the electrical service will be placed in underground conduits. In addition, once the tower and equipment building have been completed, the City will remove their existing facilities including the four towers. Thus, a total of 11 above ground objects will be removed and replaced with a single tower with mounted antennas. This will remove obstacles to the views of Koko Head and be consistent with the Sustainable Community Plan vision of protecting scenic views.

The site plan for the Anuenue Radio Facility will include a security fence which will secure the tower and equipment and extend to include the World War II underground bunker located east of the building. The fence will act to deter unauthorized entry to the facilities and the bunker. Thus, the site plan will be consistent with the guidelines for in situ preservation of historic features.

3.2.4 City and County of Honolulu Zoning

The City and County of Honolulu zoning designation for the project site is P-1, Restricted Preservation. The Anuenue Radio Facility at the Koko Head project site will be a public facility to be used by public agencies for public purposes and is allowed within the P-1 zoning designation.

3.2.5 City and County of Honolulu Special Management Area

The Coastal Zone Management Act contains the general objectives and policies upon which all counties within the State have structured specific legislation which created Special Management Areas (SMA). The Coastal Zone Management Law (CZM), set forth on Chapter 205A, Hawaii Revised Statutes, as amended, establishes that the counties shall designate and administer the SMA within the State's coastal area. Any development, as defined by Chapter 205A, within the Special Management Area boundary requires a SMA Use (SMP) permit. The SMA boundary for the area includes all of Koko Head Regional Park and Nature Preserve, except for a small portion of Koko Crater. The Anuenue Radio Facility at the Koko Head project site is located within the City's SMA and will require a SMP which is administered by the City and County of Honolulu Department of Planning and Permitting. The City Council renders the decision on issuance on a SMP.

The project site will occupy an area of about 8,480 square feet (0.195 acres) on the south slope of Koko Head at an elevation of about 612 feet mean sea level (msl) and over about 1,000 feet away from shoreline. It also lies about over 2,000 feet away and 400 feet above the areas identified in 1977 National Wetland Inventory. The closest residential areas lie to the west about 1,200 feet and about over 400 feet below the project site.

Issuance of the SMP is based on the consistency of the development with the objectives, policies, and review guidelines set forth in Chapter 205A. Further, Section 205A-4 states in implementing the objectives of the coastal zone management program, full consideration should be given to the ecological, cultural, historic, esthetic, recreational, scenic, and open space values, and coastal hazards, as well as the needs of economic development.

The Anuenue Radio Facility Koko Head project site is consistent with the following objectives, policies, and guidelines for issuance of the SMP.

Recreational Resources

Objective: Provide coastal recreational opportunities to the accessible to the public.

Policy B: Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

- (i) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational values.

Access to the Anuenue Radio Facility project site will be via an existing 10-foot wide paved access road which starts at the vehicle access entrance to the Hanauma Bay Nature Preserve and serves all of the other communication facilities located on Koko Head. The project site security fencing will be placed so that vehicle and pedestrian use of the existing access road will not be affected. Vehicle traffic and pedestrians can continue their current use of the existing access road.

The City and County of Honolulu Department of Parks and Recreation controls the access road to the project site. There will be no changes to the existing public access to the access road which is consistent with Policy B (i).

Historic Resources

Objective: Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policy B: Support state goals for protection, restoration, interpretation, and display of historic resources.

A 1998 archaeological inventory survey of Koko Head identified a series of reinforced underground bunkers on Koko Head. One of these underground bunkers is located adjacent to the west wall of the equipment building and just below or south of the tower foundation. In addition, the City and County of Honolulu has constructed a three leg 20-foot high tower on the roof of one the bunkers.

The series of bunkers is considered significant site due to its association with major events related to Hawaii's role in US military history and for its information on the historic use of the area as well as research and interpretive potential. Based on the results of the 1988 survey, the State of Hawaii Department of Land and Natural Resources Historic Preservation Division (SHPD) concurred with the recommendation to preserve the site.

The Koko Head Radio Facility project site plan will preserve the underground bunker east of the equipment building. In addition, the three leg tower will be removed from the roof of the bunker located within the City's facility.

Based on these factors and the findings from the November 1988 archaeological inventory survey, on February 24, 2004, as part of the Pre-Assessment consultation, the SHPD has made a determination that "no historic properties will be affected" by construction of the Anuenue Radio Facility at the Koko Head project site. See Appendix A. The Koko Head Radio Facility project will preserve the underground bunker and will be consistent with Policy B.

Scenic and Open Space Resources

Objective: Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policy B: Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and exiting public views to and along the shoreline;

Policy D: Encourage those developments that are not coastal dependent to locate in inland areas.

The Anuenue Radio Facility project site will occupy an area of about 8,480 square feet (0.195 acres) on the south slope of Koko Head at an elevation of about 612 feet mean sea level (msl) and over about 1,000 feet away from shoreline. Thus, the project site is not located adjacent to the coastal shoreline and lies at over 600 feet msl. The Anuenue Radio Facility will be located in an inland area and will be consistent with Policy D.

Coastal Ecosystems

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policy C: Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance.

The Anuenue Radio Facility at the Koko Head project site will occupy an area of about 8,480 square feet (0.195 acres) on the south slope of Koko Head at an elevation of about 612 feet mean sea level (msl) and over about 1,000 feet away from shoreline. The project is not anticipated to adversely impact coastal ecosystems and will be consistent with Policy C.

Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policy C: Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

- (iii) The development is important to the State's economy.

The purpose of the Anuenue Radio system is to install a modern high capacity digital interconnect to replace the Rainbow analog radio channels used by the various agencies. The digital interconnect will facilitate voice, digital radio, video, and data communications. The backbone of the new digital system will have the capability to transmit 155 Mbit/s (megabits per second), which is equivalent to 2,016 traditional voice channels or about 17 times the capacity of the Rainbow analog system.

The conversion to a digital system is needed to handle the expanding voice and data communications requirements of the public safety community. The conversion to high capacity digital microwave was also forced both by the Federally-mandated reassignment of analog microwave frequencies to personal communications systems (cellular telephones) and the growing need of public safety agencies for communications services to properly serve the public in the coming years.

Government agencies have become reliant on modern telecommunications systems to communicate and transmit data between offices and facilities and to communicate with personnel in the field. The facilities needed to provide these capabilities, such as those at Koko Head, have increased over the recent years. Public safety, emergency response, and law enforcement agencies, including City and County of Honolulu Police Department and Fire Department, have become among the primary users of these late 20th Century and early 21st Century high speed, high capacity digital communication systems.

The Anuenue Radio Facility at the Koko Head project site will be a public facility used by public agencies for public purposes. Modern telecommunications system are a necessity to protect and promote the health and welfare of the residents and visitors to the City and County of Honolulu. A safe and protected environment is necessary to promote the State's economy. Thus, Anuenue Radio Facility at the Koko Head project site will be consistent with Policy C (iii).

Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policy A: Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non point source pollution hazards.

The Anuenue Radio Facility at the Koko Head project site will be used by public agencies, including the State of Hawaii Department of Defense Civil Defense Division, the State of Hawaii Department of Health Emergency Medical Services System, the City Police Department and Fire Department, and the City Department of Parks & Recreation. The Anuenue Radio Facility at the Koko Head project site will be a public facility used by public agencies for public purposes.

Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policy B: Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements.

To comply with the City and County of Honolulu Special Management Area Rule and Regulations, required SMA documentation will be filed with the City's Department of Planning and Permitting. The SMP is subject to a public hearing and decision by the City and County of Honolulu City Council.

Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policy B: Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities.

On February 5, 2004, as part of the Pre-Assessment consultation for this Draft Environmental Assessment, three neighborhood boards were notified, Hawaii Kai Neighborhood Board No. 1, Kuliouou Neighborhood Board No. 2; and Waimanalo Neighborhood Board No. 32.

On February 12, 2004, the Kuliouou Neighborhood Board No. 2 replied by telephone that the project site was not located in the neighborhood district and that an announcement about the project would be made at the upcoming meeting.

On March 5, 2004, the Hawaii Kai Neighborhood Board No.1 replied that the board would support the Aneunue Radio Facility at the Koko Head project site.

The public will be afforded an opportunity to review and comment on this Draft EA as required by Chapter 343, Hawaii Revised Statutes, as amended, and Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules. In addition, the public participation objective will be addressed during the processing of the SMP which will include public notification as well as a public hearing.

Beach Protection

Objective: Protect beaches for public use and recreation.

Policy A: locate new inland from shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion.

The Anuenue Radio Facility at the Koko Head project site will occupy an area of about 8,480 square feet (0.195 acres) on the south slope of Koko Head at an elevation of about 612 feet mean sea level (msl) and over about 1,000 feet away from shoreline. Thus, the project site is not located adjacent to the coastal shoreline and lies at over 600 feet msl. The Anuenue Radio Facility will be located in an inland area and will be consistent with Policy A.

Marine Resources

Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policy B: Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency.

The Anuenue Radio Facility at the Koko Head project site will be a public facility used by public agencies for public purposes. Modern telecommunications system are used by public agencies, including the State of Hawaii Department of Defense Civil Defense Division, the State of Hawaii Department of Health Emergency Medical Services System, the City Police Department and Fire Department, and the City Department of Parks & Recreation. The Anuenue Radio Facility at the Koko Head project site will be consistent with Policy B as modern and efficient communications will be necessary to protect coastal resources.

4. ALTERNATIVES TO THE PROPOSED ACTION

4.1 No Action Alternative

The No Action alternative would limit public safety radio users to the use of existing voice and data communication systems which have limited capabilities and a questionable amount of service lifetime remaining. The various public agency users would have to rely on dated systems for transmitting data and voice communications. Although there would be no disturbance to the project site, use of the limited and dated systems would not be in the public interest, particularly when the Koko Head Radio Facility will serve agencies such as the State Emergency Medical Services and Civil Defense, and the City and County of Honolulu Police Department, Fire Department and Emergency Medical Services. These agencies need adequate and modern communication system to provide the high level of public service needed by the residents of the City and County of Honolulu. Based on these considerations, the No Action alternative is not considered a feasible alternative.

4.2 Other Sites

The Anuenue Radio Facility must be located at a site that provides microwave line-of-sight to provide an unobstructed path for signals between the other sites on Oahu and Molokai. For any alternative site to be considered, it would have to support a microwave path that meets the line of sight and minimum path length criteria for a viable communications link. Two other sites on Oahu that might meet these criteria are Round Top and Waimanalo Ridge.

4.2.1 Round Top Site

The Round Top site is located off Round Top Drive off Makiki Street above the Makiki area of urban Honolulu which places it about 10+ miles west of the Koko Head project site. DAGS has an existing facility including a 100 foot tall tower on a small area located adjacent to the first parking lot at the Pu'u 'Ualaka'a State Wayside park.

The existing facility, including the available space on the tower for antennas, is fully used to meet current requirement. In addition, the current tower is loaded such that it does not meet the wind survivability criteria for the Anuenue tower. The only feasible approach to use the Round Top facility for both the current and Anuenue requirements would be to remove the existing tower and replace it with a substantially stronger (wider and heavier) and taller tower. To remain operational, both a new facility and tower would be needed at the site. However, no land area of sufficient size is available which meets the space requirement of the facilities and the siting criteria for placement of the new tower and that would permit systems operating of the existing tower to maintain operations during construction and cutover. In addition electrical service at Round Top tends to be not as reliable as other locations. Based on these considerations, use of the Round Top site is not considered a feasible alternative.

4.2.2 Waimanalo Ridge

Waimanalo Ridge is located about 4.2 miles northeast of the Koko Head project site. There are no existing DAGS facilities on Waimanalo Ridge. Although the Waimanalo Ridge site would meet the micro wave line-of-sight requirements, there are several drawbacks to use of the site.

First, the Waimanalo Ridge site would require a much taller tower, possibly over 120 feet tall, which would increase the size of the foundation and the overall construction cost for the facility. The microwave path requirements for the links to Molokai require that the tower at Waimanalo Ridge be located in a prominent and highly visible site on the ridge. The current users of Waimanalo Ridge can use much smaller towers as they do not have to provide over water microwave links to Molokai. In addition, the electrical service to the site is marginally sufficient to service the requirements of the needed facility and does not always meet the necessary reliability requirements for a telecommunications facility. New electrical service to the site would also increase the overall construction cost of the facility. Lastly, the tower would introduce a facility into the view plane which does not have existing facilities such as found on Koko Head. Based on these considerations, use the Waimanalo Ridge site is not considered a feasible alternative.

5. DETERMINATION

Short-term construction impacts include disruption to the project site and surrounding areas during construction, decline in air quality from construction activities, and increase in noise levels. Once construction has been completed, the short-term adverse impacts will no longer occur.

Based on analysis of the anticipated impacts, a Finding of No Significant Impact (FONSI) is anticipated for the Anuenue Radio Facility project. The significance criteria to make this determination are set forth below and in Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules.

- 1) *Involve an irrevocable commitment to loss or destruction of any natural or cultural resources;*

The Anuenue Radio Facility at the Koko Head project site does not provide habitat for Federal or State of Hawaii listed or candidate threatened or endangered species of flora or fauna. The project site has not been previously developed, although the City and County of Honolulu communication facility and a World War II underground bunker are adjacent to the project site. Thus, the Anuenue Radio Facility at the Koko Head project site will not result in the loss or destruction of natural resources.

Based on the project site plan and the findings from the November 1988 archaeological inventory survey, on February 24, 2004, as part of the Pre-Assessment consultation, the SHPD has made a determination that "no historic properties will be affected" by construction of the Anuenue Radio Facility. See Appendix A.

The Cultural Impact Study found that since the lands within the project area were heavily impacted by the activities of the 19th and 20th centuries [telegraph, World War I and II, and communication towers and facilities]; any cultural sites were either destroyed or buried by these activities. There does not appear to be any traditional Hawaiian sites that would be impacted by construction at the Anuenue Radio Facility at the Koko Head project site.

2) *Curtail the range of beneficial uses of the environment;*

The Anuenue Radio Facility at the Koko Head project site will use lands on Koko Head which not been previously developed, although the City and County of Honolulu communication facility and a World War II underground bunker are adjacent to the project site. The Anuenue Radio Facility at the Koko Head project site will occupy an area of 8,480 square feet (0.195 acres) which is not a significant portion of the of Koko Head Regional Park. Thus, the Anuenue Radio Facility at the Koko Head project site will not curtail the beneficial uses of the environment.

3) *Conflict with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;*

The Anuenue Radio Facility project will not involve actions or activities which would adversely affect natural resources of the project site. The Anuenue Radio Facility at the project will be consistent with the guidelines of Chapter 344, HRS, as it will provide a public facility to support the critical functions assigned to the State of Hawaii Department of Defense Civil Defense Division, the State of Hawaii Department of Health Emergency Medical Services System, the City Police Department and Fire Department, and the City Department of Parks & Recreation. As such, the Anuenue Radio Facility at the Koko Head project site will not conflict with the State's long-term environmental policies or goals as expressed in Chapter 344, HRS.

4) *Substantially affect the economic or social welfare of the community or state;*

The Anuenue Radio Facility at the Koko Head project site will be a public facility to be used by public agencies for public purposes, including State of Hawaii Department of Defense Civil Defense Division, the State of Hawaii Department of Health Emergency Medical Services System, the City Police Department and Fire Department, and the City Department of Parks & Recreation. The Anuenue Radio Facility at the Koko Head project site is an integral part of the infrastructure needed to maintain the health and

welfare of the community. The Anuenue Radio Facility at the Koko Head project site will have not have an adverse effect to the economic or social welfare of the community.

5) *Substantially affect public health;*

An efficient and well-maintained voice and data communication system is needed to protect the public health of the residents and visitors on Oahu. The Anuenue Radio Facility at the Koko Head project site will serve as the facility for Federal, State and City and County of Honolulu public service agencies to conduct their mandated public functions. Thus, the Anuenue Radio Facility at the Koko Head project site will not have an adverse effect on public health.

The Anuenue Radio Facility is not expected to produce EMR hazard to humans or animals on the ground or in areas beyond the project site fence line. Thus, the Anuenue Radio Facility at the Koko Head project site will not have an adverse effect on public health.

6) *Involve substantial secondary impacts, such as population changes or effects on public facilities;*

The Anuenue Radio Facility at the Koko Head project site will be a public facility which will be used by the State of Hawaii Department of Defense Civil Defense Division, the State of Hawaii Department of Health Emergency Medical Services System, the City Police Department and Fire Department, and the City Department of Parks & Recreation to support their mission critical applications. No government or contractor personnel will be assigned to daily operation of the Anuenue Radio Facility. Contractor personnel will visit the project site to conduct tests and to perform maintenance service on the air conditioning and power systems and to clean the building and surrounding area. The contractor personnel are expected to be residents from Oahu. Thus, construction of the Anuenue Radio Facility at the Koko Head project site will not create secondary impacts, such as population changes or effects on public facilities.

7) *Involve a substantial degradation of environmental quality;*

The Anuenue Radio Facility is anticipated to result in short-term impacts to noise, air quality and traffic in the immediate vicinity of the project sited during the period of construction. The Anuenue Radio Facility at the Koko Head project site does not contain Federal or State listed or candidate threatened or endangered species of flora or fauna.

Further, based on the project site plan and the findings from the November 1988 archaeological inventory survey, on February 24, 2004, as part of the Pre-Assessment consultation, the State of Hawaii Department of Land and Natural Resources Historic Preservation Division (SHPD) has made a determination that "no historic properties will be affected" by construction of the Anuenue Radio Facility at the Koko Head project site. See Appendix A.

The Cultural Impact Study found that since the lands within the project area were heavily impacted by the activities of the 19th and 20th centuries [telegraph, World War I and II, and communication towers and facilities]; any cultural sites were either destroyed or buried by these activities. There doesn't appear to be any traditional Hawaiian sites that would be impacted by construction at the Anuenue Radio Facility at the Koko Head project site.

Based on the above findings, the Anuenue Radio Facility at the Koko Head project site will not result in a substantial degradation of environmental quality.

- 8) *Have a cumulative effect upon the environment or involves a commitment for larger actions;*

The Anuenue Radio Facility does not involve a commitment to further actions to other State of Hawaii related projects on Oahu. As a result, the Anuenue Radio Facility at the Koko Head project site will not have a cumulative effect upon the environment or involve a commitment by the State to larger actions on Oahu.

- 9) *Affect a rare, threatened or endangered species;*

The Anuenue Radio Facility at the Koko Head project site does not contain Federal or State listed or candidate threatened or endangered species of flora or fauna. Thus, the Anuenue Radio Facility at the Koko Head project site will not affect a threatened or endangered species.

10) *Detrimentially affect air or water quality or ambient noise levels;*

Operation of construction equipment would increase noise and exhaust emission levels in the immediate vicinity of the Anuenue Radio Facility project site. Once operational, the Anuenue Radio Facility at the Koko Head project site will contribute almost no additional noise or air emissions to the local area.

11) *Affects or likely to suffer damage by being located in an environmentally sensitive area such as a floodplain, tsunami zone, beach, erosion-prone area, geographically hazardous land, estuary, fresh water or coastal water;*

According to the Flood Insurance Rate Map (FIRM), November 20, 2000 Federal Emergency Management Agency Flood Insurance Rate Map Community Panel Number 15003C0395E, the Anuenue Radio Facility at the Koko Head project site is located in Zone D (areas in which the flood hazard are undetermined). Although the flood hazard has not been determined, based on its elevation, approximately 612 mean sea level, and the topographic characteristics of the project site, it would not be subject to flood hazards, a hazardous floodplain or a tsunami zone. In addition, the Koko Head Radio Facility project site is not within the coastal shoreline area. Thus, the Anuenue Radio Facility at the Koko Head project site is not located in an environmentally sensitive area.

12) *Substantially affect scenic vistas and viewplanes identified in county or state plans or studies;*

The Anuenue Radio Facility will be located on the slopes to the southwest of top of Koko Head and will be located about 4,500 feet (or approximately 0.9 miles) south of Kalaniana'ole Highway within Hanauma Bay Nature Preserve. The project site will be about 17 lower than the existing City facility and, due to its placement, the building will

be about 4 to 5 feet lower than the surrounding grade. This means only about 8 feet of the building will protrude above the surrounding grade.

Based on the known height of the City's tower, and the known height of the Anuenue tower (about 70 feet tall) and removal of the 7 above ground poles and the four City towers, it was possible to approximate the view of the project site with the Anuenue tower and antennas as viewed from Maunaloa Bay Beach Park. This analysis shows that the Anuenue tower would be visible as a small feature on the lower slope of Koko Head. The analysis also showed that removal of the above ground utility poles and City towers would remove a total of 11 above ground objects from the view and result in a single tower and two utility poles on Koko Head. The removal of 11 above ground objects and construction of one tower should not create a significant adverse impact to public views from Maunaloa Bay Beach Park.

At locations closer to the base of Koko Head, including near Koko Head Elementary School and the surrounding residential areas, the intervening terrain obscures views of the summit of area, including near the Anuenue Radio Facility project site. Thus, the addition of the tower and removal of the of the above ground utility poles should not be an adverse impact to public views from these areas.

13) *Require substantial energy consumption.*

The Anuenue Radio Facility at the Koko Head project site is a public facility to be used by public agencies for public purposes. It is a new facility which will be planned and designed to minimize use of electrical power. Thus, the Anuenue Radio Facility at the Koko Head project site will not create a substantial increase in energy consumption.

Based on these findings and the assessment of potential impacts from the Anuenue Radio Facility at the Koko Head project site, a Finding of No Significant Impact (FONSI) is anticipated.

6. CONSULTED PARTIES

6.1 Pre-Assessment Consultation

The following agencies were consulted during the pre-assessment phase of the Draft Environmental Assessment. Each agency was sent a copy of a project summary and a request for their written comments on the project. All written comments and responses are reproduced in Appendix A.

US Department of the Army Honolulu District Engineer
US Department of Transportation Coast Guard
US Fish and Wildlife Service
State of Hawaii Department of Land and Natural Resources
State of Hawaii Department of Land and Natural Resources Historic Preservation
Division
State of Hawaii Department of Health
State of Hawaii Department of Health Environmental Management Division
State of Hawaii Department of Transportation
Office of Hawaiian Affairs
City and County of Honolulu Department of Design and Construction
City and County of Honolulu Department of Parks and Recreation
City and County of Honolulu Department of Planning and Permitting
City and County of Honolulu Department of Transportation Services
Councilmember Charles K. Djou
Hawaii Kai Neighborhood Board No. 1
Kuliouou Neighborhood Board No. 2
Waimanalo Neighborhood Board No. 32
Kamehameha Schools, KSBE Properties
Hawaiian Electric Company

6.2 Agencies and Organizations Consulted on the Draft EA

The following is a list of agencies and organizations to be consulted during the preparation of the Draft Environmental Assessment.

Federal

Department of the Army, US Army Engineer District, Honolulu
US Department of the Interior of the Fish and Wildlife Service
US Department of the Interior Geological Survey
US Department of Transportation Federal Aviation Administration
US Coast Guard

State Agencies

Department of Agriculture
Department of Business, Economic Development and Tourism
DBED&T - State Energy Office
Department of Defense
Department of Hawaiian Home Lands
Department of Health
Department of Health - Environmental Management Division
Department of Land and Natural Resources
Department of Land and Natural Resources Historic Preservation Division
Department of Land and Natural Resources - Water Resource Management
Department of Transportation
Office of Hawaiian Affairs
Office of Environmental Quality Control
University of Hawaii Water Resources Research Center
University of Hawaii Environmental Center
Hawaii Kai Public Library
Waimanalo Public Library

City and County of Honolulu Agencies

Civil Defense
Department of Design and Construction
Fire Department
Information Technology
Municipal Reference Center
Department of Parks and Recreation
Department of Planning and Permitting
Police Department
Department of Transportation Services

Board of Water Supply
Hawaii Kai Neighborhood Board No. 1
Kuliouou Neighborhood Board No. 2
Waimanalo Neighborhood Board No. 32

Officials

Senator Sam Slom
Representative William Stonebreaker
Councilmember Charles K. Djou

Public Utilities

Hawaiian Electric Company
Verizon Hawaii
Verizon Wireless
Nextel
Oceanic Time Warner

Organizations

Friends of Hanauma Bay

7. REFERENCES

City and County of Honolulu Department of Planning and Permitting. *City and County of Honolulu General Plan*. 2002.

City and County of Honolulu Department of Design and Construction. *Final Environmental Impact Statement Improvements to Hanauma Bay Nature Preserve*. August 1999.

City and County of Honolulu Department of Design and Construction. *Draft Environmental Impact Statement Koko Head Regional Park & Nature Preserve*. March 1999.

City and County of Honolulu Department of Parks and Recreation. *Hanauma Bay Nature Park Final Environmental Assessment*. January 1993.

Federal Emergency Management Agency. *Flood Insurance Rate Map Community Panel Number 15003C0395E*. November 20, 2000.

State of Hawaii Land Evaluation and Site Assessment Commission. *A Report of the State of Hawaii Land Evaluation and Site Assessment System*. February 1986.

The Hawaii State Plan Chapter 226, Hawaii Revised Statutes. Office of the Governor Office of State Planning. 1988.

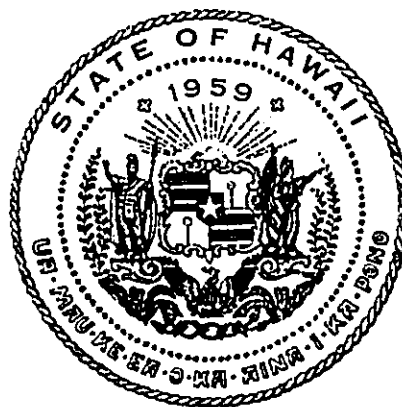
State of Hawaii Department of Land and Natural Resources. *Ka Iwi State Park Master Plan and Environmental Impact Statement*. April 1996.

State of Hawaii Department of Accounting and General Services. *Final Environmental Assessment Anuenue (formerly Rainbow) Radio Facilities and Towers Statewide, Kahua Ranch Site*. January 2004.

Title 11 Hawaii Administrative Rules State of Hawaii Department of Health Chapter 46 Community Noise Control. September 23, 1996.

US Department of Agriculture Soil Conservation Service. *Soil Survey of Island of Oahu, State of Hawaii*. 1972.

US Department of the Navy Naval Space Command. *Final Environmental Impact Statement for Electronic Installations in the Western Pacific*. June 1990.



APPENDIX A



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

6/08-03
3/23/04
TAKE PRIDE
IN AMERICA

In Reply Refer to:
PN-04-097

John Sakaguchi, Senior Planner
Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Dear Mr. Sakaguchi:

Thank you for your February 5, 2004, letter requesting comments on the Anuenue radio facilities and tower, Koko Head site, Maunaloa District, Oahu, Hawaii (TMK (3) 9-012:002). The Koko Head proposal is to erect a 70-foot tall, four-leg, self-supporting, tower to carry multiple microwave solid and grid dish antennas. In addition, an equipment building will be built to contain interior items to support the radio equipment. Elizabeth Sharpe from our office spoke with you on March 5, 2004, to confirm that a deadline of March 19, 2004, for our written response would be acceptable to you. We received your letter on February 6, 2004.

Based on our review of the report you provided on March 9, 2004 (Survey of the Avifauna and Feral Mammals at Koko Head and Koko Head Crater, Oahu, Hawaii) and pertinent information in our files, including maps prepared by the Hawaii Natural Heritage Program, the proposed project site is located in the vicinity of *Marsilea villosa* (an endangered plant) and Oahu Plant Critical Habitat. However, we have determined that the distance between *Marsilea villosa* and Oahu Plant Critical Habitat, and the proposed project site is adequate to prevent project impacts to these federally protected resources.

We appreciate your efforts to conserve listed species. If you have any questions, please contact Elizabeth Sharpe, Fish and Wildlife Biologist (phone: 808/792-9400; fax: 808/792-9580).

Sincerely,

Gina Shultz

for Gina Shultz
Acting Field Supervisor

WILSON
OKAMOTO
CORPORATION



ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH: 808/945-7277
FAX: 808/945-7253

6608-03
June 10, 2004

Ms. Gina Shultz, Acting Field Supervisor
Pacific Islands Fish and Wildlife Service
Fish and Wildlife Service
US Department of the Interior
300 Ala Moana Blvd., Room 3-122
Box 50088
Honolulu, Hawaii 96850

Attention: Ms. Elizabeth Sharpe

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002
Response to Comments

Dear Ms. Shultz:

Thank you for your March 19, 2004 comments (PN 04-097) regarding the Anuenue Radio Facility Koko Head project. The Draft EA will note that the Koko Head project site is located in the vicinity of *Marsilea villosa*, an endangered plant and the Oahu Plant Critical Habitat, and that the distance between the plant and habitat is adequate to prevent impacts to the federally protected resources.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamamoto, DAGS



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96826-440

REPLY TO
ATTENTION OF

February 17, 2004

Regulatory Branch

Mr. John L. Sakaguchi
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

This letter is written in regards to your request for comments on the Anuenue Radio Facilities and Towers, located at Koko Head, on Oahu. The proposed project includes the construction of an unmanned telecommunications facility, a 70-foot tower for the microwave and grid dish antenna, construction of an access road and installation of supporting equipment to operate the facility.

Based on office reference material, two (2) wetland areas are identified on the 1977 National Wetland Inventory maps. Since the new facility will be located on a site currently occupied with four towers and a building, it does not appear that the construction activities will result in discharges into the wetland areas. Therefore, a Department of the Army permit will not be required.

File number 200400164 is assigned to this project. Should you have questions, you may contact Ms. Lolly Silva at 438-7023 or by FAX at 438-4060.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

6608-03

[Handwritten signature]

cc: DAGS, VA

RECEIVED
FEB 19 2004

WILSON OKAMOTO CORPORATION

WILSON
OKAMOTO
CORPORATION



ENGINEERS
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1907 S. BERETANIA ST.
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HONOLULU, HI 96826
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FAX: (808) 946-2753

6608-03
March 31, 2004

Mr. George P. Young, PE, Chief
Regulatory Branch
Department of the Army
US Army Engineer District, Honolulu
Fort Shafter, 96858-5400

Attention: Ms. Lolly Silva

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012002
Response to Comments

Dear Mr. Young:

Thank you for your February 11, 2004 comments (File No. 200400164) regarding the Anuenue Radio Facility Koko Head project. The Draft EA will note that it does not appear that the construction activities will result in discharges into the wetland area and a Department of the Army permit will not be required.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamamoto, DAGS



Commander
United States Coast Guard
Maintenance & Logistics Command
Pacific

Bldg 54, Coast Guard Island
Alameda, CA 94501
Draft Symbol: MLCP (e-4)
Phone: (510) 437-3374
Fax: (510) 437-3377
Email: jkatz@h1.uscg.mil

4700
February 11, 2004

Wilson Okamoto Corporation
Attn: Mr. John Sakaguchi, AICP, Senior Planner
1907 South Beretania Street, Suite 400
Honolulu, HI 96826

Dear Sir:

Thank you for the opportunity to take part in the draft environmental assessment consultation process for the proposed Anuenue radio facility at Koko Head.

As you may be aware, the U.S. Coast Guard is a partner with the State of Hawaii in support of the Anuenue system. Thus, we are very interested in ensuring the proposed radio facility at Koko Head becomes a reality.

If for any reason we can be of assistance in facilitating the completion of this environmental assessment, please contact LT Sean Katz at (510) 437-3374, skatz@h1.uscg.mil.

Sincerely,

JAMES COTE
Chief, Integrated Network Systems Section
U.S. Coast Guard
By direction

cc: DAGS, VIA FAX 2/19/04

WILSON
OKAMOTO
CORPORATION



ENGINEERS
PLANNERS
1907 S. BERETANIA ST
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

6608-03
April 1, 2004

Mr. James Cote, Chief
Integrated Network Systems Section
US Coast Guard
Bldg 54, Coast Guard Island
Draft Symbol: MLCP (e-4)
Alameda, CA 94501

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002
Response to Comments

Dear Mr. Cote:

Thank you for your February 11, 2004 comments (4700) regarding the Anuenue Radio Facility Koko Head project. The Draft EA will note that the US Coast Guard is a partner with the State of Hawaii in support of the Anuenue project. The Draft EA will also note the US Coast Guard is very interested in ensuring the Radio Facility is constructed.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

PHONE (808) 594-1283



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

6608-03
3/17/04

FAX (808) 594-1285

cc: DAGS, V.A.
FAX 3/10/04

HRD04/1292

March 11, 2004

John L. Sakaguchi, AICP
Wilson Okamoto
1907 S. Bertania St., Ste 400
Honolulu, HI 96826

RECEIVED
MAR 15 2004

WILSON OKAMOTO CORPORATION

Re: DEA, Pre-Assessment Consultation; Anuenue Radio Facilities and Towers (TMK: 3-9-012-002)

Dear Mr. Sakaguchi:

OHA is in receipt of your February 5, 2004 request for comments on the above referenced project. From the maps provided it seems that the new radio tower will be on a bluff overlooking the ocean. OHA requests that you consult with Native Hawaiian Fishermen to ensure that the radio towers will not impact site lines to fishing Koa in the area.

Thank you for this opportunity to comments. If you have further questions please contact Pua Aiu at 594-1931 or by e-mail at paiu@oha.org.

Sincerely,

Clyde W. Namu'o

Clyde W. Namu'o
Administrator

WILSON
OKAMOTO
CORPORATION



ENGINEERS
PLANNERS
1907 S. BERTANIA ST.
SUITE 400
HONOLULU, HI 96826
PH 808-594-2277
FAX 808-594-2253

6608-03
April 1, 2004

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012-002
Response to Comments

Dear Mr. Namu'o:

Thank you for your March 11, 2004 comments regarding the Anuenue Radio Facility Koko Head project. The project site will be located on the south slope of Koko Head at an elevation of about 616 feet mean sea level (msl) and over about 1,000 feet away from the closest shoreline. The Radio Facility will not be located near the shoreline and should not obstruct views either toward the offshore or from the offshore.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3279
HONOLULU, HAWAII 96826

February 24, 2004

6100-03
2/27/04
CANTOR L. FARRER, M.D.
DIRECTOR OF HEALTH

EPO-04-070
CC: DAGS, VIA FAX
RECEIVED
FEB 25 2004

WILSON OKAMOTO CORPORATION

Mr. John L. Sakaguchi
Wilson Okamoto Corporation
1907 S Beretania St., Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

SUBJECT: Pre-Assessment Consultation
Anuenue(formerly Rainbow) Radio Facilities and Towers, Statewide
Koko Head Site: Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0236
TMK: 3-9-012-002

Thank you for allowing us to review and comment on the subject document. We have the following comments to offer:

Control of Fugitive Dust:

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to existing residences and public areas, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

- a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;

Mr. John L. Sakaguchi
February 24, 2004
Page 2

- b) Provide an adequate water source at the site prior to start-up of construction activities;
- c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimize dust from shoulders and access roads;
- e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Control dust from debris being hauled away from the project site.

If you have any questions, please contact the Clean Air Branch at (808) 586-4200.

Sincerely,

Jane F. Hansen - lum
JANE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

c: CAB

6608-03
April 1, 2004

Ms. June F. Hamigan-Lum, Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002
Response to Comments

Dear Ms. Hamigan-Lum:

Thank you for your February 24, 2004 comments regarding the Anuenue Radio Facility Koko Head project. The Draft EA will note that construction activities must comply with the provisions of Hawaii Administrative Rules 11-60.1-33 on Fugitive Dust. The measures to control dust will be included in the contract specifications for the construction contract.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamamoto, DAGS

WILSON
OKAMOTO
CORPORATION



ENGINEERS
PLANNERS
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HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
NATURAL HERITAGE BUILDING, ROOM 555
601 KALANIKULA BOULEVARD
KAPOLEI, HAWAII 96707



6608-03
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
NATURAL HERITAGE BUILDING, ROOM 555
601 KALANIKULA BOULEVARD
KAPOLEI, HAWAII 96707
COUNTY DIRECTOR - WINTER
2/27/04
2/27/04

COUNTY DIRECTOR - WINTER
2/27/04
2/27/04

cc: DAGS, VIA FAX
A. HAYASHI

RECEIVED
FEB 26 2004
WILSON OKAMOTO CORPORATION

February 24, 2004

John L. Sakaguchi
AICP, Senior Planner
Wilson Okamoto Corporation
1907 S. Bertanna Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

SUBJECT Chapter 6E-3 Historic Preservation Review- Pre-Environmental Assessment
Comments on the Anuenue (formerly Rainbow) Radio Facilities and
Towers, Statewide Koko Head Site DAGS Job No. 16-10-0256
Maunaloa, Kona, O'ahu
TMK: (1) 3-9-012:002

Thank you for the opportunity to comment on the proposed radio facility and tower at Koko Head. The facility will support the rebuilding and modernization of a shared State and Federal microwave system to support the State of Hawaii, the City and County of Honolulu the U. S. Coast Guard and Federal law enforcement agencies. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the project areas. We received notification of this undertaking from your office on February 6, 2004 and subsequent material on February 13, 2004.

The unmanned facility will be built on an approximately 0.5 acre parcel and consists of an equipment building, a 70-foot tall four-leg tower, an exterior fuel tank, and interior items to support the radio equipment. The project also includes the installation of grounding radials and commercial power connection. The existing City and County towers and building will be removed after construction of the new facility. In addition existing utility systems will be relocated to an underground system.

Archaeological inventory survey conducted during planning of the Koko Head Regional Park in 1998 identified a single historic site, Site 50-80-15-5898, near the current project area (Borthwick et al, 1998 Archaeological Inventory Survey of Eight Areas within the Koko Head Regional Park, Maunaloa Ahupua'a, Island of O'ahu). The site, a series of reinforced concrete bunkers is considered significant because of its association with major events related to Hawaii's role in U. S. military history and for its information on the historic use of the area as well as its research and interpretive potential. The SHPD has concurred with the recommendation to preserve this site.

John L. Sakaguchi
Page 2

Because the site is considered significant the proposed installation of the new lower, facilities and access road has been sited to avoid disturbing the bunker site complex. One of the towers will be removed from its location on a bunker. We request that removal of the tower will be done in such a way to minimize any further damage to the bunker on which it is built. Therefore, we believe that "no historic properties will be affected" by this project.

Should you have any questions about archaeology, please feel free to call Sara Collins at 682-8026 or Elaine Jourdain at 682-8027. Should you have any questions about architectural matters, please feel free to contact Susan Tasaki at 682-8032.

Aloha,

P. Holly McEldowney

P. Holly McEldowney, Administrator
State Historic Preservation Division

EJ/jen

c: Susan Tasaki, Architecture Branch

6608-03
April 1, 2004

**WILSON
OKAMOTO
CORPORATION**



**ENGINEERS
PLANNERS**
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: 808/946-2277
FAX: 808/946-2253

Ms. P. Holly McEldowney, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
601 Kamohila Boulevard, Room 555
Kapolei, HI 96707

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002
Response to Comments

Dear Ms. McEldowney:

Thank you for your February 24, 2004 comments (Log No. 2004.0487, Doc No. 0420EJ27) regarding the Anuenue Radio Facility Koko Head project. The Draft EA will note that, after your review of the 1998 study which included the project site and the design site plans to preserve the adjacent underground bunker, "no historic properties will be affected".

We appreciate your participation in the Draft EA review process.

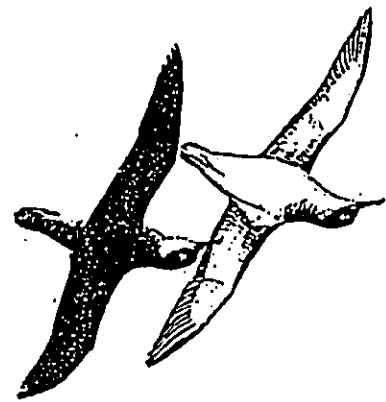
Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamamoto, DAGS

M:\WQA\6608-03 daps\pre ass1 LT\hdpd.LT-1.docx 4/1/2004



THE NEWELL'S SHEARWATER LIGHT ATTRACTION PROBLEM

A GUIDE FOR ARCHITECTS, PLANNERS, AND RESORT MANAGERS

TECHNICAL ASSISTANCE IS AVAILABLE FOR ADDITIONAL INFORMATION, CONTACT:

State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
P.O. Box 1671
Lihue, Hawaii 96766
245-4433

U.S. Dept. of the Interior
Fish and Wildlife Service
P.O. Box 87
Kilauea, Hawaii 96754
828-1413

The Nature Conservancy
of Hawaii
1028 Nuuanu Avenue, Suite 201
Honolulu, Hawaii 96813
537-4508



DEPARTMENT OF LAND AND NATURAL RESOURCES

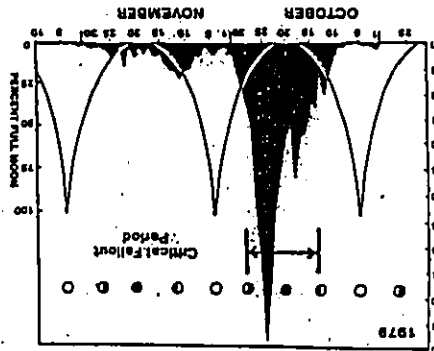


Figure 4. Relationship of shearwater "fallout" to the moon phase. The critical period of fallout occurs during the week before and after the new moon (darkest night). Dowsing lights will not absolutely necessary during that period could substantially reduce the annual shearwater fallout problem.

What To Do If Shearwaters Fall In Your Area

Collect birds as soon as possible to avoid losses to dogs and cats. They are generally docile birds and are easily handled. Take them to the nearest "shearwater aid station" located at county life stations and at a few private businesses located around the island. If birds must be held overnight, keep them in ventilated cardboard boxes with a secure lid.

Do not release birds by tossing them into the air. They may have unseen internal injuries and could become more badly injured.

INTRODUCTION:

The future of a native Hawaiian seabird, the Newell's Shearwater, is threatened by the growth of new urban developments. Every year on Kauai, nearly 1,500 Newell's Shearwaters are attracted to bright urban lights, fly into unseen objects and fall to the ground. Fortunately, 90% of them are recovered and successfully returned to the wild through the "SCS" (Save Our Shearwaters) program which involves the cooperation of the general public.

This brochure is designed to describe the bird, its problems with lights and specifically what architects, planners, resort managers and the general public can do to reduce or avoid the light attraction problem.

THE BIRD

The Newell's Shearwater once nested on all of the major Hawaiian Islands, but the monsoons, introduced to Hawaii, Maui, Molokai and Oahu in the late 1800's is believed to have caused the extinction of shearwaters on those islands. Kauai is the last strong-hold for this unique native Hawaiian seabird.

Newell's Shearwaters nest during the spring and summer months in the interior mountains of Kauai. They dig a long burrow in the ground beneath dense vegetation and lay a single egg each year. The eggs hatch during July and August and the nestlings are raised within the burrow. The adult birds abandon the nest after a week or two before they are old enough to fly. The nestlings become hungry and leave the nesting grounds by themselves shortly after nightfall. They head for the open ocean and must depend upon their instincts to find food. They do not return to their nest but fly south towards the equator where they will remain all winter on the open seas until the following spring.

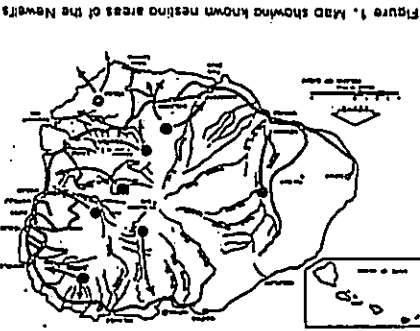
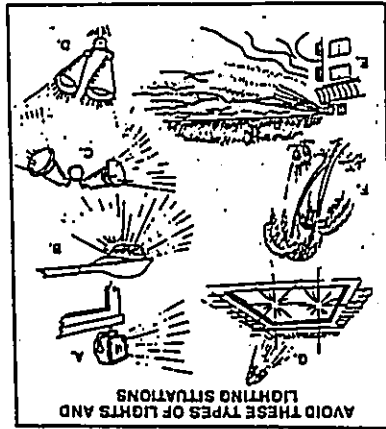


Figure 1. Map showing known nesting areas of the Newell's Shearwater.

Figure 2. Avoid these types of lights: A. Unshielded high intensity floodlight on tall structure. B. Street light without shield. C. Unshielded spotlight. D. Spotlight aimed upwards. Avoid using these types of lighting structures during peak fall-out periods (new moon) during October and November. E. Flood lights on roof. F. Spotlight aimed up at vegetation. G. Spotlights.

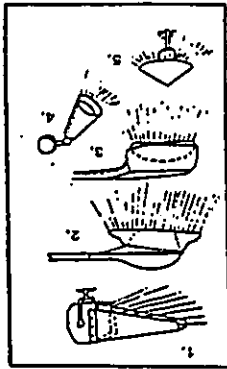


PREDATORS: Dogs, cats, rats and feral pigs are known to kill some shearwaters and their young on the nesting grounds each year. The accidental establishment of a new predator to Kauai such as the mongoose could cause the rapid extinction of this bird. Mongoose sightings on Kauai should be reported to wildlife officials promptly.

LIGHT ATTRACTION: Young shearwaters leaving their nests have a natural attraction to bright lights. Flying near urban areas, they become temporarily blinded by the lights and fly into unseen objects such as utility wires, trees, buildings and automobiles. Oftentimes they are just confused and exhausted. Most often they are only stunned and fall to the ground, but about 10 percent of them die each year. The problem is growing because of the increased number of urban lights associated with new resort and residential developments. The greatest fall-out problem occurs near coastal towns, particularly near river mouths.

THE THREATS:

Figure 3. Use these types of lights whenever possible: 1. Shielded floodlight. 2. Shielded streetlight. 3. Cut-off luminaire. 4. Shielded spotlight aimed up at vegetation. 5. Infrared.



Hotel, Resort and Condominium Managers

- When converting to new exterior light fixtures, consider installing shielded lights, cut-off luminaires or indirect lighting.
- Consider installing shielded exterior lights that are known to attract shearwaters. Some light manufacturers offer ready made shields. In some cases inexpensive shields can be fabricated.
- Avoid using unnecessary lighting during the critical shearwater fall-out period (October and November each year). Water fall-out period occurs on and around the new moon, generally for only 10 to 12 days (See Figure 4). Dowsing unnecessary floodlights that light up the sun or shine upward upon buildings or trees for that short period could significantly reduce shearwater fall-out.

Architects and Planners

- Be aware of the light attraction problem during the planning stages of new development.
- Make every effort to avoid lighting situations where bright light projects upwards or laterally (see Figure 2). Avoid large high intensity floodlights located on building tops or poles whenever possible.
- Use shielded lights, cut-off luminaires, or indirect lighting whenever possible (see Figure 3).
- Avoid locating bright lights near utility wires or other objects that could be difficult for birds to see at night.

6608-03
March 31, 2004

**WILSON
OKAMOTO
CORPORATION**



ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: 808/946-2777
FAX: 808/946-2753

Ms. Dierdre S. Mamiya, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide;
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002
Response to Comments

Dear Ms. Mamiya:

Thank you for your February 23, 2004 comments regarding the Anuenue Radio Facility Koko Head project which included those submitted by the Division of Forestry and Wildlife dated February 13, 2004. Our responses to your comments are as follows:

The Draft EA will note that there is concern regarding seabird's attraction to lights. Please note, it is not anticipated that the tower will require lighting which might attract seabirds. The final determination for the requirement for lighting the tower will be made by the US Department of Transportation Federal Aviation Administration.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamamoto, DAGS

MTW/OM/6608-03 dagstpr/asm/1/16/04/1/2/2004/2004

LEILA LEMLE
GOVERNOR OF HAWAII



RECEIVED
DIVISION OF
STATE PARKS
Feb 17 9 44 AM '04

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 13, 2004

LD/NAV
ANUENUE RADIO DAGS.CMT

MEMORANDUM:

Suspense Date: 2/23/04

TO:

Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Commission on Boating and Ocean Recreation
XXX Office of Water Resource Management
XXX Oahu District Land Office
Dierdre S. Mamiya, Administrator
Land Division

FROM:

SUBJECT: Draft Environmental Assessment, Pre-Assessment Consultation for Anuenue Radio Facilities and Towers, Statewide, Koko Head Site, Maunaloa District, Oahu, Hawaii
DAGS JOB NO. 16-10-0256 - TMK: (1) 3-9-012: 002
Consultant: Wilson Okamoto Corporation (John Sakaguchi)

Please review the attached letter (Project Description) dated February 6, 2004 and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

() We have no comments.

Signed: *David S. Smith*

Print Name: David S. Smith

() Comments attached.

Date: 2/27/04

Division: State Parks

March 31, 2004

**ENGINEERS
PLANNERS**
SUITE 400
1907 S. BERETANIA ST.
HONOLULU, HI 96816
PH: (808) 946-2777
FAX: (808) 946-2753

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Annuene (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012-002
Response to Comments

Thank you for your March 10, 2004 comments regarding the Anuenue Radio Facility Koko Head project which included those submitted by the Division of State Parks and the Oahu District Land Office. We will note that no comments were submitted.

The Draft EA will note that the Engineering Division has stated the project site is located in Zone D of the Flood Insurance Rate Map.

We appreciate your participation in the Draft EA review process.

Feb 15/92

cc: A. Yamanoha, DAGS

U:\WYOM\6608-03 doc\09 11\T\2004T-3.doc 3/31/2004



PETER S. YOUNG
Commissioner
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT

DAK DAVISON
Deputy Director - Land

ERNEST W. LAU
Deputy Director - Water

AGRICULTURE RESOURCES
BOATERS AND SCUBA REGISTRATION
BUREAU OF CONSERVATION
COMMISSIONER OF WATER RESOURCES
COMMISSIONER OF LAND RESOURCES
COMMISSIONER AND DEPUTY COMMISSIONER
Encephalitis
FORESTRY
Hunting and Fishing
SANDOLINE ISLAND RESERVE COMMISSION
... ..

MEMORANDUM

NUM

Nicholas A. Vasepo
Land Division

[Signature]
Special Agent in Charge

The Office of Conservation and Coastal Lands (OCCL) has reviewed the proposed project regarding for the Anuenue Radio Facilities and Towers, located at Koko Head S, Maunaloa District, Island of Oahu, TMK: (1) 3-9-012:002.

The OCCL notes the subject parcel is located in the State Land Use Conservation District General, Limited and Protective subzones.

The OCCL notes that the proposed use is an identified land use in the Protective subzone of the Conservation District, according to Section 13-5-22, Hawaii Administrative Rules (HAR), P-6, PUBLIC PURPOSE USES, D-1, land uses undertaken by the State of Hawaii or Counties to fulfill a mandated government function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district." This requires a Board permit.

Should you have further questions and/ or comments please call Dawn Hegger at the Office of Conservation and Coastal Lands at 587-0380.

RECEIVED
LAND DIVISION
2004 FEB 18 P 4:03
DEPT. OF AGRICULTURE
NATURAL RESOURCES
STATE OF ILLINOIS

Correspondence: OA-04-118
FEB 18 2004

6608-03
March 31, 2004

Ms. Dierdre S. Mamiya, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002
Response to Comments

Dear Ms. Mamiya:

Thank you for your February 23, 2004 comments regarding the Anuenue Radio Facility Koko Head project which included those submitted by the Office of Conservation and Coastal Lands and dated February 18, 2004. Our responses to your comments are as follows:

The Draft EA will note that the project site is located in the State Land Use Conservation District, General, Limited and Protective subzones. The Draft EA will also note the proposed use is an identified land use on the Protective subzone of the Conservation District and requires a Board permit.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

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**WILSON
OKAMOTO
CORPORATION**



**ENGINEERS
PLANNERS**
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

LAND USE
OFFICE OF LAND



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96813-3378

February 11, 2004

Mr. John L. Sakaguchi, AICP
Senior Planner
Wilson Okamoto Corporation
1907 South Beretania, Ste 400
Honolulu, HI 96826

Dear Mr. Sakaguchi:

SUBJECT: Comments to the Draft Environmental Assessment
Pre-Assessment Consultation; Anuenue Radio Facilities and Towers, Koko
Head Site; Maunaloa District, Oahu, Hawaii
Tax Map Key: 3-9-012: 002

Our comments should be printed as follows:

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

Sincerely,

Russell S. Takata

Russell S. Takata
Program Manager
Noise, Radiation & IAQ Branch

6608-03

2/27/04

cc: DAGS
VIA FAX

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WILSON OKAMOTO CORPORATION

6808-03
March 31, 2004

**WILSON
OKAMOTO
CORPORATION**



**ENGINEERS
PLANNERS**
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Russell S. Takata, Program Manager
Noise, Radiation & IAQ Branch
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012/002
Response to Comments

Dear Mr. Takata:

Thank you for your February 11, 2004 comments regarding the Anuenue Radio Facility Koko Head project. Our responses to your comments are as follows:

The Draft EA will note that project activities shall comply with Administrative Rules of the Department of Health Chapter 11-46 Community Noise Control.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakeguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

810 SOUTH KING STREET, 3RD FLOOR - HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4339 • FAX: (808) 523-4730 • INTERNET: www.cc.hawaii.gov



JEFFREY HARRIS
Mayor

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FEB 23 2004
WILSON OKAMOTO CORPORATION

CHERYL D. SOON
DIRECTOR

GEORGE N. OKAMOTO
SENIOR CONSULTANT

TP2/04-50869R

cc: DAGS, VIA FAX

February 23, 2004

Mr. John L. Sakaguchi, AICP, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: Anuenue (formerly Rainbow) Radio Facilities and Towers

In response to your February 5, 2004 letter, we have reviewed the information provided regarding the subject project. At this time, we have no comments on the project.

We look forward to reviewing the draft environmental assessment. Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Ceryll D. Soon

CHERYL D. SOON
Director

6608-03
April 1, 2004

WILSON
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CORPORATION



ENGINEERS
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PH: (808) 946-2777
FAX: (808) 946-2753

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Attention: Ms. Faith Miyamoto, Transportation Planning Division

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256; Tax Map Key: 3-9-012:002
Response to Comments

Dear Ms. Soon:

Thank you for your February 23, 2004 comments regarding the Anuenue Radio Facility Koko Head project. We note there are no comments at this time. A Draft EA will be sent to you for review and comment.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

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DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

880 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4554 • Fax: (808) 523-4557
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JEREMY HARRIS
MAYOR



TIMOTHY E. STREIBER, P.E.
DIRECTOR

cc: DAGS,
VIA FAX

6608-03
2/27/04 JS

February 23, 2004
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FEB 24 2004

Mr. John L. Sakaguchi, AICP, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002

This is in response to your letter dated February 5, 2004, regarding the above subject matter.

I understand that the Department of Information Technology provided you with their input directly.

As such, we have no further comments regarding the draft environmental assessment. Please call me at 527-5002 if you have any questions.

Sincerely,

Gerald N. Hamada
GERALD N. HAMADA
Chief
Mechanical/Electrical Division

cc: Alvin Sunahara - DIT

6608-03
March 31, 2004

WILSON
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1907 S. BERETANIA ST.
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FAX: (808) 546-2253

Mr. Gerald N. Hamada, Chief, Mechanical/Electrical Division
Department of Design and Construction
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256; Tax Map Key: 3-9-012:002
Response to Comments

Dear Mr. Hamada:

Thank you for your February 23, 2004 comments regarding the Anuenue Radio Facility Koko Head project. We note there are no comments.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

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DEPARTMENT OF INFORMATION TECHNOLOGY
CITY AND COUNTY OF HONOLULU

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HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR



February 18, 2004

John L. Sakaguchi, AICP, Senior Planner
Wilson Okamoto Corporation
1907 South Beretania, Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

SUBJECT: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256
Tax Map Key: 3-9-012:002

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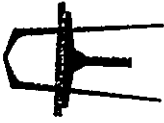
cc: DAGS via FAX

COURTNEY HARRINGTON
DIRECTOR & CO.

BRECKE HARRINGTON
DEPUTY DIRECTOR

6608-03
March 31, 2004

WILSON
OKAMOTO
CORPORATION



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1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Courtney Harrington, Director and CIO
Department of Information Technology
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Attention: Mr. Alvin Sunahara

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256; Tax Map Key: 3-9-012:002
Response to Comments

Dear Mr. Harrington:

Thank you for your February 18, 2004 comments regarding the Anuenue Radio Facility Koko Head project. The Draft EA will note that the Department of Information Technology supports the project which is vital to Honolulu's public safety communication network and an improved facility is needed to replace the existing rusted and deteriorated facility.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

CH:st

cc: Alvin Sunahara

M41WDA16008-03 department mail LT00017-1.doc; 3/1/2004

DEPARTMENT OF PLANNING AND PERMITTING

CITY AND COUNTY OF HONOLULU

80 SOUTH KING STREET
HONOLULU, HAWAII 96813
Phone: (808) 525-4411 Fax: (808) 527-4743
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JEREMY HARRIS
MAYOR

6608 03
2/23/04
CC: DAGS, VIA FAX
ERIC G. CRISPIN, AIA
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
KATHY SOKOLAWA
ACTING DEPUTY DIRECTOR

2004/ELOG-292 (DT)

February 23, 2004

RECEIVED
FEB 24 2004
WILSON OKAMOTO CORPORATION

Mr. John L. Sakaguchi
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Preliminary Assessment
Annuene Radio Facilities and Tower
Tax Map Keys: 3-9-12: 2

This is in response to your letter dated February 5, 2004, requesting pre-Environmental Assessment (EA) comments for new facilities and a tower at Koko Head. We have the following comments:

1. The site is within the Special Management Area and requires a major Special Management Area Use Permit (SMP). As our staff previously discussed with you by telephone, the EA and SMP application should include all proposed State and City uses, activities and operations which meet the definition of "development" under Chapter 25, Revised Ordinances of Honolulu, and Chapter 205A-22, Hawaii Revised Statutes.
2. The EA should include a discussion of alternate sites for the tower.

Mr. John L. Sakaguchi
Page 2
February 23, 2004

We would like to review the Draft EA when it becomes available. Should you have any questions regarding this letter, you may contact Dana Teramoto of our staff at 523-4648.

Sincerely yours,

Eric G. Crispin, AIA
ERIC G. CRISPIN, AIA
Director of Planning
and Permitting

EGC:CS
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**WILSON
OKAMOTO
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**ENGINEERS
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HONOLULU, HI 96828
PH: (808) 946-2277
FAX: (808) 946-2253

6608-03
March 31, 2004

Mr. Eric Crispin, AIA, Director of Planning and Permitting
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Attention: Dana Teramoto

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256; Tax Map Key: 3-9-012:002
Response to Comments

Dear Mr. Crispin:

Thank you for your February 23, 2004 comments (2004/ELOG-292 DT) regarding the Anuenue Radio Facility Koko Head project. Our responses to your comments follow:

1. The Draft EA will note that Koko Head project site lies within the Special Management Area and will require a Special Management Area Use Permit (SMP). The EA will discuss the uses which will be undertaken by the State and City at the project site.
2. The Draft EA will discuss alternatives for project, including alternate sites, as required by Hawaii Administrative Rules Title 11, State of Hawaii Department of Health, Chapter 200, Environmental Impact Statement Rules and Chapter 25, Revised Ordinances of Honolulu, and Chapter 205A, Hawaii Revised Statutes, as amended.
3. A copy of the Draft EA will be submitted to you for your comments.

We appreciate your participation in the Draft EA review process.

Sincerely,

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS
M:\WQ\6608-03 dag\jrs ass LT\6608-03.doc; 3/31/2004

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

1000 ILIUMA STREET, SUITE 300 • KAPOLEI, HAWAII 96707
PHONE: (808) 982-5585 • FAX: (808) 982-5131 • WWW.CC.HONOLULU.HI.US



JEREMY HARRIS
MAYOR

6608-93
cc: DAGS, VIA DEL
WILLIAM D. BALFOUR, JR.
DIRECTOR
EDWARD I. "BOBBY" DAZ
COUNTY DIRECTOR

February 26, 2004

RECEIVED
FEB 27 2004

WILSON OKAMOTO CORPORATION

Mr. John L. Sakaguchi, AICP, Senior Planner
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Sakaguchi:

Thank you for letter of February 5, 2004, regarding Draft Environmental Assessment, Pre-Assessment Consultation; Avenue (formerly Rainbow) Radio Facilities and Towers, Statewide, Koko Head Site; Maunaloa District, Oahu, Hawaii DAGS Job No. 16-10-0256 Tax Map Key: 3-9-012:002. As you know, this property is part of Hanalei Bay Nature Preserve and under the jurisdiction of the Department of Parks and Recreation. We have several concerns, primarily focusing on how the new tower will affect the department's mission to provide present and future recreational opportunities to our residents and visitors.

We recognize the need for telecommunication equipment to serve our society. At the same time, it is envisioned that this Parks and Recreation property will one day be open to the public for hiking and sightseeing activities, with the communication equipment either removed or co-existing with such recreational activities. Will this new site be constructed in such a manner that the public will not have to be restricted from the area surrounding the tower in the future?

For the past 13 years, the City has not allowed any expansion of improved areas atop Koko Head. New equipment was allowed only within the existing sites. This met the growing demand of communication services without taking up additional park property. Your proposed site will result in an increase in developed square footage. More importantly, this sequesters into our major concern-visual impact of the new site.

On Hanalei Bay, the Department of Parks and Recreation recently completed a multi-million dollar improvement project to improve and protect the scenic environment. These improvements were done in such a way that the buildings do not impose upon the scenery. We are concerned about the impact the proposed 70-foot tower, building, fuel tank, and antenna array will have on the scenery and landscape when viewed from the scenic lookouts in Hanalei Bay, when viewed from the beach, and as seen by people on Kalanianaʻole Highway as they view Koko Head when approaching Hanalei Bay. Will the antenna have night lights?

Mr. John L. Sakaguchi, AICP, Senior Planner
Page 2
February 26, 2004

We would appreciate artistic renderings of the area and proposed improvements as viewed from the vantage points mentioned earlier so we can come to a more informed position on this proposal. Mr. Alan Hong, Hanalei Bay Manager, can be contacted regarding the scenic lookouts in Hanalei Bay. He can be reached at 395-2211.

We recommend your proposal be presented to the Friends of Hanalei Bay and the Hanalei Kai community.

Again, thank you for this opportunity to provide comments.

Sincerely,

W.D. Balfour, Jr.
WILLIAM D. BALFOUR, JR.
Director

WDB:fc
51004

6608-03
June 10, 2004

**WILSON
OKAMOTO
CORPORATION**



**ENGINEERS
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HONOLULU, HI 96826
PH: 808/946-2777
FAX: 808/946-2753

Mr. William D. Balfour, Jr., Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment, Pre-Assessment Consultation;
Anuenue (formerly Rainbow) Radio Facilities and Towers, Statewide,
Koko Head Site; Maunaloa District, Oahu, Hawaii
DAGS Job No. 16-10-0256; Tax Map Key: 3-9-012:002
Response to Comments

Dear Mr. Balfour:

Thank you for your February 26, 2004 comments regarding the Anuenue Radio Facility at the Koko Head project site. Our responses to your comments are as follows:

The site plan for the Radio Facility will not restrict vehicle or pedestrian access to the existing paved road used to reach other nearby facilities. However, for security and public safety purposes, a security fence will be constructed to enclose the equipment building, tower, and related facilities.

Currently, the City and County of Honolulu has a total for four towers (two three leg self supported towers, one about 50 feet tall and the other about 20 feet tall, and two monopoles, one about 52 feet tall and the other about 30 feet high) on Koko Head. The City and County of Honolulu will remove their existing facilities, including the four towers, once the new facility has been constructed. Thus, although there will be an increase in the developed area, the net change should not significantly increase the developed area when compared to the entire area of Koko Head.

The State of Hawaii Department of Accounting and General Services (DAGS) is also concerned about public views of the facility. Currently, there are a total of 13 above ground objects near the project site which can be seen on Koko Head from various locations, including the at the western end of upper parking lot at Hanauma Bay Nature

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6608-03
Letter to Mr. William D. Balfour, Jr., Director
Page 2
June 10, 2004

Preserve, which is about 5,500 feet or over 1 mile from the project site. The above ground objects include the four towers on the City and County of Honolulu communication site, seven active utility poles that provide power to the City's facility and two other nearby communication facilities, and two abandoned above ground utility poles near the project site.

In addition to the removal of the four towers by the City, the State will remove the five of the active utility poles (two poles must remain to service the other facilities on Koko Head) and construct an underground system to route the power to the new facility and the other nearby facilities. The two abandoned utility poles will also be removed. Thus, once the Anuenue Facility is completed, there will be only one visible tower and two active utility poles, or a net decrease of 10 visible above ground objects on Koko Head. This should not be an adverse impact to views of Koko Head.

It is not anticipated that the tower will require lighting which might attract seabirds. The final determination for the requirement for lighting the tower will be made by the US Department of Transportation Federal Aviation Administration (FAA). However, it should be noted that, for other Anuenue radio facility projects, the FAA has determined that the tower did not exceed obstruction standards and marking and lighting would not be necessary for aviation safety.

The Draft EA will include a photographic analysis of views of Koko Head from public places with and without tower, including the removal of the towers, the above ground active and abandoned utility poles.

A presentation can be made to interested community groups.

We appreciate your participation in the Draft EA review process.

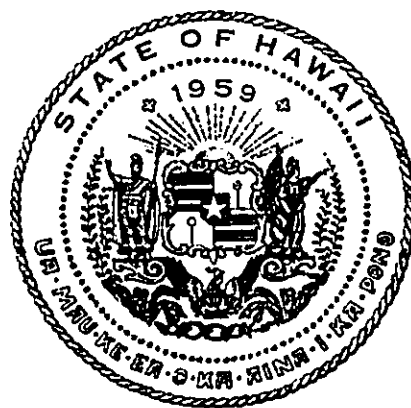
Sincerely,

John L. Sakaguchi, AICP, Senior Planner

cc: A. Yamanoha, DAGS

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MLWDA\6608-03 dagstpr asst LT\dcp\T-1.doc; 6/10/2004



APPENDIX B

6608-03

4/3/04

FLORA/FAUNA SURVEY REPORT FOR THE PROPOSED
ANUENUE RADIO FACILITIES AND TOWERS STATEWIDE,
KOKO HEAD SITE, MAUNALUA DISTRICT OAHU, HAWAII

cc: DABS
VIA DEL
4/3/04

FOR
WILSON OKAMOTO CORPORATION AND ASSOCIATES
1907 SOUTH BERETANIA STREET, SUITE 400
HONOLULU, HAWAII 96826

BY
EVANGELINE J. FUNK PH.D.
BOTANICAL CONSULTANTS
HONOLULU, HAWAII

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RESULTS	6
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FLORA REPORT

A Flora/fauna survey of the proposed Anuenue Radio Facilities and Towers Stateside, Koko Head Site, Maunaloa District Oahu, Hawaii was carried out on March 9, 2004. The land area consists of a 200 by 200 foot tower site and an underground power line pathway from the edge of the tower site to the nearest power source. The proposed pathway is approximately ten feet wide and parallels the access road for about 500 feet. It then crosses the access road and then crosses an open area to the existing power line. These surveys were undertaken to ascertain what biological resources are present on this site. The results of the flora survey will be presented first followed by the results of the fauna survey.

METHODS

One botanist used the walk through method during the data collection phase of this survey. All parts of this small site and the power line pathway were examined.

RESULTS

In 1988, Group 70 prepared an Environmental Impact Statement (EIS) for the proposed Koko Head Regional Park site (Group 70, 1988). Although this document treats the natural resources of nearby Koko Crater, the old Job Corps site and areas around Haunama Bay, there is no specific reference to the dry, windswept ridge that forms Koko Head.

The small study site is exposed to the almost constant wind, leaving large areas bare of both soil and plants. The persisting vegetation is made up of low growing or wind sheared herbs and trees. The only 'Opiuma tree (*Pithecellobium dulce*) on the site is less

than five feet in height, yet the trunk of the tree is considerably longer having been bent by the constant wind. The kiawe trees (*Prosopis pallida*) are twelve to fifteen feet in height but are all found in the lee of the ridge on the Portlock side. Low growing grasses and weedy herbs dominate the vegetation of this site, this includes Buffelgrass (*Cenchrus ciliaris*), Guinea grass (*Panicum maximum*), and bristly foxtail grass (*Setaria verticillata*) are common along with Flora's paint brush (*Emilia sonchifolia*), sow thistle (*Sonchus oleraceus*), ivy gourd (*Coccinia grandis*), and scarlet pimpernel (*Anagallis arvensis*). There are still a very few hardy native Hawaiian taxa that persist on this windy site. The morning glory Pa'uohi'iaka (*Jacquemontia ovalifolia* subsp. *sandwicensis*), 'ilima (*Sida fallax*), and popolo (*Solanum americanum*) persist among all the alien species. Actually these taxa are quite common in the lowlands of all the Hawaiian Islands.

ENDANGERED SPECIES

No candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) is known from this site and none were found during this survey. However, in Ihi'ihilauakea Crater located about one quarter of a mile away and about five-hundred feet lower there is a large colony of the listed endangered fern 'ihi'ihl or *Marsilea villosa* Kaulf. The proposed Anuenue Radio Facilities and Towers Stateside, Koko Head Site, Maunalua project will probably not affect the 'ihi'ihl colony because of the distance and the elevational change between the two sites.

**SPECIES LIST OF THE PLANTS FOUND ON PROPOSED ANUENUE RADIO
FACILITIES AND TOWERS SITE KOKOHEAD, OAHU, HAWAII**

The plant families in the following species list have been alphabetically arranged within two groups, Monocotyledons, and Dicotyledons. The genera and species are arranged alphabetically within families. The taxonomy and nomenclature follow that of Wagner, Herbst, and Sohmer (1990). For each taxon the following information is provided:

1. An asterisk before the plant name indicates a plant introduced to the Hawaiian Islands since Cook or by the aborigines.
2. The scientific name of the plant.
3. The Hawaiian name or the *most widely used* common name of the plant.
4. Abundance ratings are for this site only and they have the following meanings:
 - Uncommon = a plant that was found less than five times.
 - Occasional = a plant that was found between five and ten times.
 - Common = a plant considered an important part of the vegetation.
 - Locally abundant = plants found in large numbers over a limited area. For example the plants found in grassy patches.

This species list is the result of an extensive survey of this site during the early spring (March 2004) and it reflects the vegetation composition of the flora during a single season. Minor changes in the vegetation will occur due to introductions and losses and a slightly different species list would result from a survey conducted during a different growing season.

Scientific Name	Common Name	Abundance
-----------------	-------------	-----------

MONOCOTYLEDONS

POACEAE - Grass Family

* <i>Bothriochloa pertusa</i> (L.) A. Camus	Pitted beardgrass	Common
* <i>Cenchrus ciliaris</i> L.	Buffelgrass	Common
* <i>Chloris barbata</i> (L.) Sw.	Swollen fingergrass	Common
* <i>Chloris radiata</i> (L.) Swartz	Radiate fingergrass	Common
* <i>Eleusine indica</i> (L.) Gaertn.	Wiregrass	Occasional
* <i>Panicum maximum</i> Jacq.	Guinea grass	Common
* <i>Setaria verticillata</i> (L.) P. Beauv.	Bristly foxtail	Occasional
* <i>Sporobolus indicus</i> (L.) R. Br.	West Indian dropseed	Common

DICOTYLEDONES

ANACARDIACEAE – Mango Family

* <i>Schinus terebinthifolius</i> Raddi	Christmas berry	Uncommon
---	-----------------	----------

ASCLEPIADACEAE – Milkweed Family

* <i>Stapelia gigantea</i> N. E. Brown	Zulu giant	Common
--	------------	--------

ASTERACEAE – Sunflower Family

* <i>Ageratum conyzoides</i> L.	Maile hohono	Locally abundant
* <i>Bidens alba</i> (L.) DC		Occasional
* <i>Bidens cynapiifolia</i> Kunth		Locally abundant
* <i>Emilia sonchifolia</i> (L.) DC	Flora's paintbrush	Occasional
* <i>Pluchea symphytifolia</i> (Mill.) Gillis	Sourbush	Common
* <i>Sonchus oleraceus</i> L.	Pualele	Occasional
* <i>Taraxacum officinale</i> W. W. Weber	Dandelion	Occasional
* <i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	Golden crown-beard	Occasional

BRASSICACEAE – Mustard Family

* <i>Lepidium virginicum</i> L.		Uncommon
---------------------------------	--	----------

Scientific Name	Common Name	Abundance
CONVOLVULACEAE – Morning glory Family		
<i>Jacquemontia ovalifolia</i> (Choisy) H. Hallier	Pa'uohi'iaka	Common
CUCURBITACEAE – Gourd Family		
* <i>Coccinia grandis</i> (L.) Voight	Ivy gourd	Uncommon
EUPHORBIACEAE – Spurge Family		
* <i>Chamaesyce hirta</i> (L.) Millsp.	Hairy spurge	Occasional
FABACEAE – Bean Family		
* <i>Alysicarpus vaginalis</i> (L.) DC		Uncommon
* <i>Chamaecrista nictitans</i> (L.) Moench	Partridge pea	Occasional
* <i>Crotalaria incana</i> L.	Fuzzy rattlepod	Occasional
* <i>Crotalaria pallida</i> Aiton	Smooth rattlepod	Occasional
* <i>Desmanthus virgatus</i> (L.) Willd.	Slender mimosa	Uncommon
* <i>Leucaena leucocephala</i> (Lam.) de Wit	Koa haole	Common
* <i>Medicago lupulina</i> L.	Black medick	Occasional
* <i>Mimosa pudica</i> L.	Sensitive plant	Common
* <i>Pithecellobium dulce</i> (Roxb.) Benth.	'Opiuma	Uncommon
* <i>Prosopis pallida</i> (Humb. & Bonpl. Ex. Willd.) Kunth		Occasional
MALVACEAE – Mallow Family		
* <i>Malva parviflora</i> L.	Cheese weed	Occasional
<i>Sida fallax</i> Walp.	'Ilima	Occasional
PRIMULACEAE – Primrose Family		
* <i>Anagallis arvensis</i> L.	Scarlet pimpernel	Occasional
SOLANACEAE – Nightshade Family		
<i>Solanum americanum</i> Mill.	Popolo	Occasional
STERCULIACEAE – Cacao Family		
<i>Waltheria indica</i> L.	'Uhaloa	Common
VERBENACEAE – Verbena Family		
* <i>Stachytarpheta jamaicensis</i> (L.) Vahl	Vervain	Occasional

FAUNA REPORT

The results of an extensive fauna survey of the 1,270 acre Koko Head Regional Park Site where the proposed Anuenue Radio Facilities and Towers, Statewide, Koko Head site is located were published in an EIS prepared by Group 70 in 1988 (Group 70, 1988). However, although the survey covered an extensive area along Oahu's south shore from Makapu'u Point to Koko Head, there is no specific mention of the ridge where the Anuenue Radio Facilities and Towers, Statewide, Koko Head Site is located.

METHODS

Two ten minute listening periods were carried out on this small site. One along the access road near the powerline and the other over the ridge above the Portlock houses where the kiawe trees are thickest.

RESULTS

Koko Head is a dry, windswept ridge. Much of the area, subject to constant wind, is barren and badly eroded. There is very little vegetation that might provide food or nesting sites for birds or mammals. The study site is also fairly isolated. The nearest dwellings are located on the Portlock side well below the ridge. Therefore the usual commensal mammals such as rats, mice, cats, and mongooses were not seen and were not expected although they may be present.

In spite of the wind there were a few birds in the area. These included:

Common Mynas (*Acridotheres tristis*). Mynas were in the kiawe trees (*Prosopis pallida*) below the ridge and in the air.

Red-Whiskered Bulbul (*Pycnonotus jocosus*). Two bulbuls were perched on the powerline near the access road.

Zebra Dove (*Geopelia striata*). Zebra doves were heard on the Hanauma Bay side of the ridge.

House Sparrow (*Passer domesticus*) were present in low numbers in the trees along the access road.

ENDANGERED SPECIES

No candidate, proposed, or listed threatened or endangered bird or mammal species as set forth in the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) are known from this site and none were found during this survey

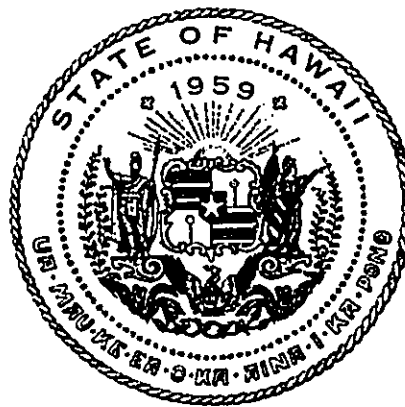
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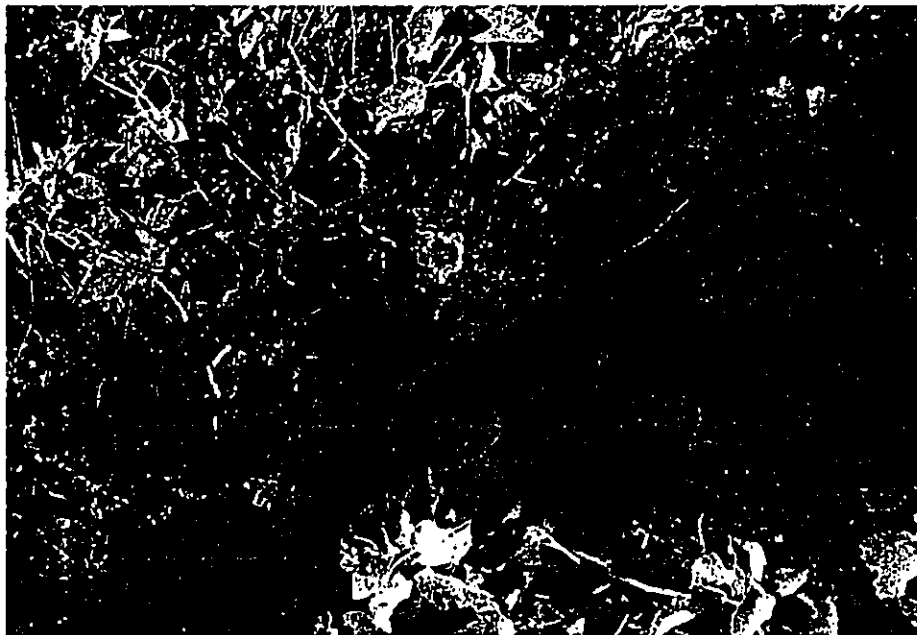


APPENDIX C

DOCUMENT CAPTURED AS RECEIVED

The complete Cultural Impact Study and Assessment
has been filed with the State of Hawaii Department of Land
and Natural Resources Historic Preservation Division and
the State of Hawaii Office of Environmental Quality Control

Cultural Impact Study & Assessment
6608-01 DAGS Rainbow Radio Facility-Koko Head
Maunaluah Ahupua'a
District of Kona/Honolulu, O'ahu, Hawai'i



Prepared for
IARII
Wilson Oakamoto, Corp.

By Maria E. Ka'imipono Orr
April 12, 2004

CULTURAL IMPACT ASSESSMENT
SUMMARY

This cultural impact study and assessment is based on two guiding documents, Act 50 and OEQC Guidelines [see Appendices A & C], as well as the *Criteria for Historic Preservation* cited below.

Act 50 [State of Hawaii 2000]. H.B. NO. 2895 H.D.1 was passed by the 20th Legislature and approved by the Governor on April 26, 2000 as Act 50. The following excerpts illustrate the intent and mandates of this Act:

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawai'i Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

"'Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects....

State Historic Preservation Division Draft Rules (1989)

Criteria for Historic Preservation. The "significance" of a site is determined by a set of criteria.

The following is the State of Hawaii criteria for historic preservation:

Criterion A: Be associated with events that have made an important contribution to the broad patterns of our history.

Criterion B: Be associated with the lives of persons important in our past.

Criterion C: Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value.

Criterion D: Have yielded, or be likely to yield, information important for research on prehistory or history.

Criterion E: Have an important historical cultural value to an ethnic group of the state.

SUMMARY OF FINDINGS.

The following summaries are based on the information presented in the previous sections: the traditional and historical literature review in Part III and the ethnographic data and analysis in Part IV. References are not cited unless it is new information and not already cited in the text above. These summaries condense the information above, but also serve to focus on a few significant individuals and events in Maunaloa's history in relation to Koko Head, as well as give a broad overview of land, water and marine resources and uses in the general area, as they reflect cultural properties and practices.

Summary of Significant People and Events.

According to traditional and historical material, the Maunaloa Ahupua'a, specifically the lands of Koko Head have gone through a number of significant changes, and over time, witnessed the comings and goings of many significant people. Some of these people contributed substantially not only to the history of Maunaloa, but of O'ahu Island and the rest of the Hawaiian Islands as well. There were several people and events noted in the oral histories and later recorded by explorers, missionaries, native Hawaiian scholars and ethno-historians, from the time Maweke to Kamehameha I who conquered the various island kingdoms to brought them under one realm. Some of these significant people stopped over to Koko Head and vicinity on their travels around the islands.

Legendary People.

Several legendary people were associated with Koko Head. The gods Kāne and Kanaloa spent some time on Koko Head; the volcano goddess Pele and her sister Hi'iaka are connected to these lands. The two craters of Koko Head are believed to be the home of two sister chiefesses 'Ihi'ihilauakea and Kauanonoula, whom the craters are named after.

Ali'i nui.

During the 1600s - 1700s, the ruling chiefs resided in Ko'olaupoko and would have made use of the resources of nearby Maunalua. Kuali'i was the ruling chief in the early 1700s; his eldest son followed briefly. The domain of O'ahu ended up with another son, Pele'ioholani, who is said to have brought the O'ahu Kingdom to the height of its power. For a period of time Maui ruling chief Kahekili ruled O'ahu. According to Captain Portlock, Kahekili constructed a heiau on Koko Head, but destroyed it shortly after. Alapa'inui, Kalani'opu'u and Kamehameha tried to land in Maunalua Bay, but were thwarted each time.

Historic People

During the Mahele period when the king and lesser chiefs were claiming their lands, the register and testimony to the Land Commission provided information as to the people who were claiming ahupua'a which included the project area. The Maunalua Ahupua'a was awarded to Victoria Kamamalu, sister of two kings, Kamehameha IV and V, and granddaughter of Kamehameha I. After her death title was transferred to her father, then to Princess Ruth, then Princess Bernice Pauahi Bishop, where it became part of her Trust known as the Bishop Estate. Bishop Estate transferred ownership to the City and County of Honolulu.

Significant Use.

Koko Head was said to be the place where kahuna who studied the winds would climb to; even today it is a very windy place where winds sweep across the promontory. It was the abode of two legendary chiefesses and the temporary site of one of Kahekili's heiau.

Summary of Land Resources and Use

Various land use patterns are recounted in the literature, legends, maps and legal documents, but are not always physically evident on the landscape. This is the case with Koko Head.

Ancient Land Use

The traditional literature has some information about Koko Head; it was a place where the gods Kāne, Kanaloa and their younger brother

Kāneapua visited. The old name for Koko Head is Mookua-o-Kaneapua (the backbone or ridge of Kāneapua). Koko Head was used as a site to "read" and study the winds. It's adjoining craters were named after and the home of two legendary chiefesses, `Ihihilauakea and Kauanonoula said to be creations of Pele during the time of the travels of Pele and her sister Hi`iaka. `Ihi`ihi is a fern that grows in that crater; and there was a spring in the crater Kauanonoula (the seeping red rain water).

Historic Land & Marine Resources and Use.

The stories and activities of Kahekili represent a transition period of pre-contact and contact, and were fairly well documented, but it is not clear that there is any physical evidence of the heiau he constructed on Koko Head. The promontory was heavily impacted during both World War I and World War II when telegraph poles were erected, and radio communication facilities and at least four bunkers were constructed. Post war activities up to the present era also include the construction of airplane signal towers and communication towers and facilities; and a paved road through the center of the promontory.

Marine resources in the project vicinity include Maunalua Bay, the fishpond, which was heavily dredged and is now a marina; and Hanauma Bay. Koko Head is a good vantage point to observe the dolphins and whales that pass by. It would have been a good vantage point for fish spotters who would point out the direction of various fish schools.

Water Resources and Use

The only known water source connected to Koko Head is a seepage from the Kauanonoula (Nonoula) crater.

Summary of Survey Findings (Cultural Practices)

It is evident that at one time the lands of Maunalua, which include the project lands, were part of an ancient Hawaiian life system. Archaeological surveys reveal evidence of heiau, burials, and habitation, indicating a multi-use of the lands. A significant cultural practice of Koko Head at one time was that it was connected to the gods (Kāne, the god who provides the living water; and Kanaloa, god of the sea and fishermen). It was also once connected to studying the winds. And during the early historic period it was to be used for heiau ceremony by Kahekili, a Maui ruling chief who "conquered" O`ahu from his nephew. There was no ethno-historical indication that any other heiau were on Koko Head, although there was one across the way on the slopes of Koko Crater and several others in different areas of Maunalua. However, there were three known ko`a or fishing shrines at sea level on western, north-western slope of Koko Head.

There is a known sea cave on the western tip of Koko Head where the botanist said her friend's family used to go for their rituals.

Cultural Resources. This category entails sites or places associated with significant events and/or people important to the native Hawaiian patterns of prehistory; embody distinctive characteristics; or are likely to yield information important for research on the prehistory of Hawaii. It also includes sites that yield resources important for native Hawaiian Cultural Practices, past and present; and items that are part of a cultural context. *Wahi Pana* or sacred places are important cultural resources to native Hawaiians regardless that the original sites that may have been there no longer exist. Often it is not the lack of interest but the lack of knowledge of whereabouts or more likely, lack of access that prevent native Hawaiians from visiting these sites. In this sense Koko Head was a *wahi pana*, however, it is not certain if any cultural practices continue today.

Cultural Practices. This category includes items that are essential to the religious or gathering practices that have cultural value to either native Hawaiians or other ethnic groups. Since no fishermen were interviewed, it is not known if Koko Head is still being used as a spotting location for fishermen. While there are native flora in the project area, it could not be determined if any cultural gathering was still taking place; and it would be the botanist who would determine if any significant specie would be impacted by activities of this project

Historic Resources. This category entails sites associated with significant events and/or people important to the broad patterns of history[post Western contact], which includes other ethnic groups; embodies distinctive characteristics of an historic era or master; or are likely to yield information important for research on the history of Hawaii. The only structures in this category are associated with the old Marconi Telegraph Station, a triangulation station or World War I and II. They're historic "value" has not been determined.

Summary of Consultants

One consultant doesn't have a problem with the project--'with reservation', while the other consultant doesn't want to indicate whether he is for or against the project. Both would like to "observe" this improvement as they would any change, improvement or development in Maunalua.

CULTURAL IMPACT ASSESSMENT

The archival data supported by the pedestrian and ethnographic surveys suggest that the project area has a long and broad history regarding cultural, land and water resources and use that span many centuries. The traditional oral histories indicate that this area was part of the O`ahu *ali`i* history dating back to well before the 1300s. Late nineteenth century ethnographic works state that this area was utilized since before the time of the Pele legends up to the time of

the western traders and voyagers. It continues to be utilized to the present time, but by non-cultural entities.

Since the lands within the project area were heavily impacted by the activities of the 19th and 20th centuries [telegraph, World War I and II, and communication towers and facilities]; any cultural sites were either destroyed or buried by these activities. There doesn't appear to be any traditional Hawaiian sites that would be impacted, however, there are historic sites that will be impacted, but ultimately, that would be the determination of military historians.